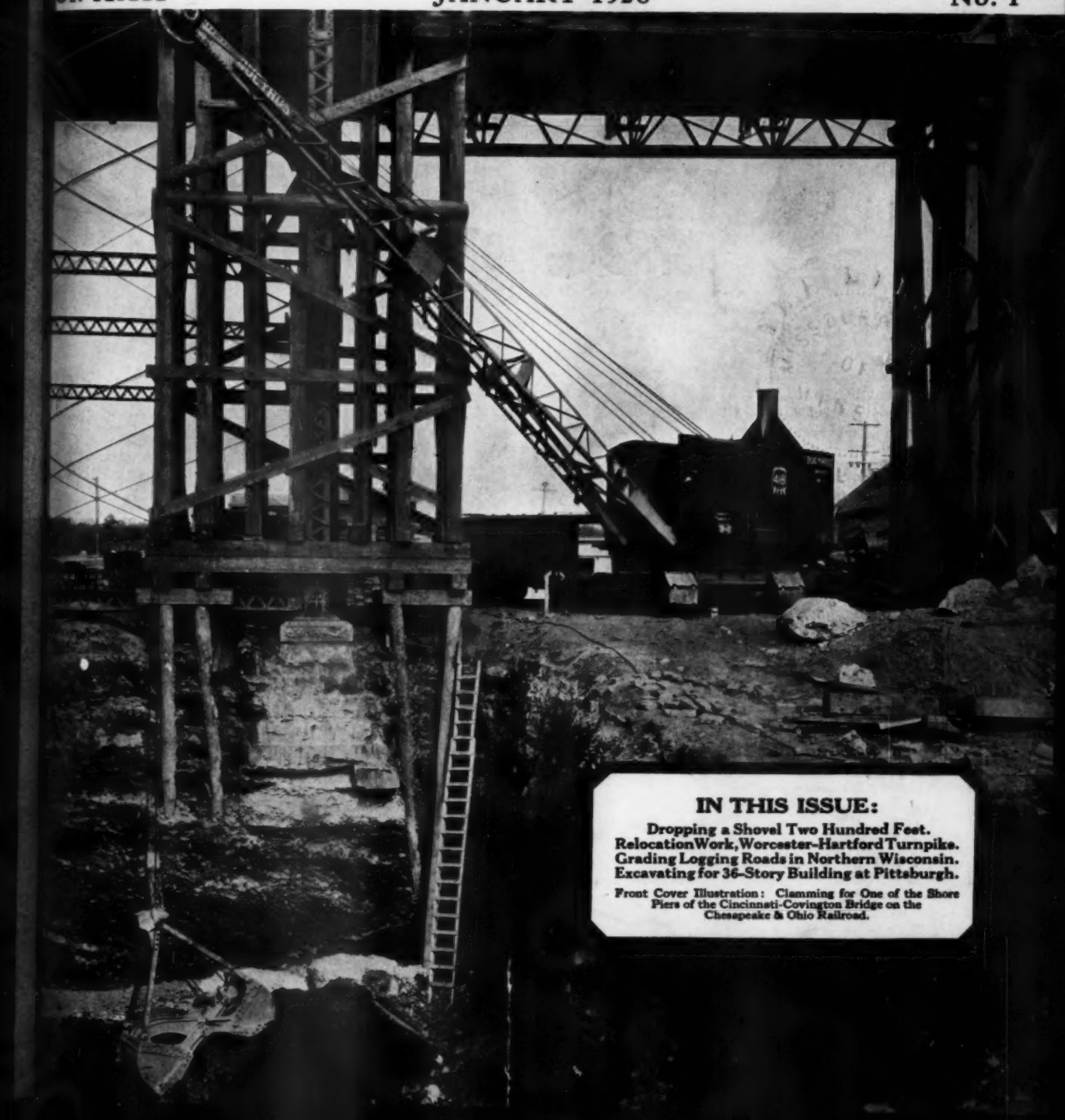
The EXCAVATING ENGINEER

ol. XXII JANUARY 1928 No. 1



IN THIS ISSUE:

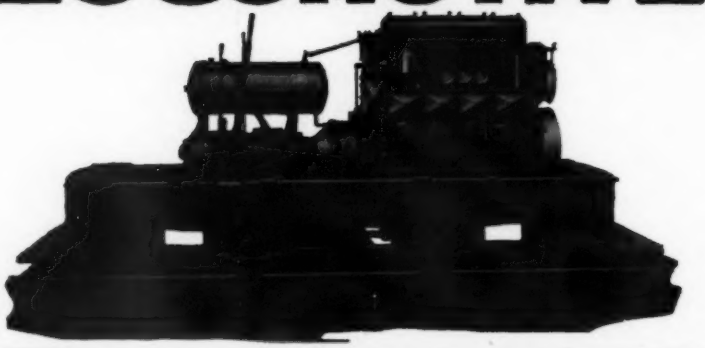
Dropping a Shovel Two Hundred Feet.
Relocation Work, Worcester-Hartford Turnpike.
Grading Logging Roads in Northern Wisconsin.
Excavating for 36-Story Building at Pittsburgh.

Front Cover Illustration: Clamming for One of the Shore Piers of the Cincinnati-Covington Bridge on the Chesapeake & Ohio Railroad.

And Now

A STURDY DIESEL-POWERED GEAR-DRIVEN LOCOMOTIVE IS BEING BUILT IN AMERICA

The PLYMOUTH DIESEL LOCOMOTIVE



DESIGNED TO REDUCE FUEL AND OPERATING COSTS TO A MINIMUM

The Locomotive illustrated is the 10-ton size-4 speeds forward and 4 reverse. In actual service this Locomotive handled a gross load of 144 tons up a 3 per cent grade at 8.1 miles per hour. Fuel consumption averaged 3 1-8 gallons per hour.

With thousands of Plymouth Gasoline Locomotives operating in all parts of the United States and foreign countries, meeting with general favor everywhere for their performance and economy, this company takes pride in announcing what is believed to be the first tested and perfected Diesel-powered, gear-driven locomotive built in America.

Fuel oil in many territories has proven its economical advantage. Wherever fuel oil is available, this Plymouth Diesel Locomotive will effect a saving in fuel cost even greater in proportion than Plymouth Gasoline Locomotives have made over other methods of haulage.

PLYMOUTH LOCOMOTIVE WORKS
The Fate-Root-Heath Company
PLYMOUTH, OHIO

GASOLINE PLYMOUTH LOCOMOTIVES DIESEL

If it's a Track Haulage Problem There's a PLYMOUTH to Solve it

A full range of sizes from 10 to 50 tons.

PLYMOUTH
GASOLINE *Locomotives* DIESEL

See our exhibit at American Good Roads Show, Cleveland, January 9-13.

In writing to The Fate-Root-Heath Company please use post card bound in the center of this number.

HERCULES EXTRAS, No. 2 to No. 7

One of the Greatest Values We Have Ever Offered — They Save 10% to 30% By Replacing The Present Extras and Gelatins

The number of 1¼" x 8" cartridges to the hundred pounds ranges from approximately 240 for Hercules Extra No. 2 to 350 for Hercules Extra No. 7. To compare Hercules Extras, the nearest grades are shown at right.

Extra No. 2 is nearest grade to	50%-60% Extra L. F. or 40% Gelatin L. F.
Extra No. 3 is nearest grade to	40%-50% Extra L. F. or 35% to 40% Gelatin L. F.
Extra No. 4 is nearest grade to	35%-40% Extra L. F. or 25% to 30% Gelatin L. F.
Extra No. 5 is nearest grade to	30% Extra L. F.
Extra No. 6 is nearest grade to	25% Extra L. F.
Extra No. 7 is nearest grade to	20% Extra L. F.

WE HAVE RECENTLY DEVELOPED AND ARE OFFERING A NEW SERIES OF EXPLOSIVES—The Hercules Extras, Nos. 2 to 7—that represent greater explosive value per dollar than any of our other explosives. These powders are not to be confused with the well-known Extra L. F. Grades. They are destined to replace the Specials and largely to supplant the old established Extras, and to some extent, the lower strength Gelatins, because they will perform as much or more work at less cost.

All of these new Hercules Extras have a weight strength of approximately 70%. The different cartridge counts of these powders make available cartridge strengths from 20% in Hercules Extra No. 7 to 50% in Hercules Extra No. 2. Where conditions are favorable the new Hercules Extras will replace the Gelatins up to and including 40%, and the Extra L. F. Grades. The saving in explosives cost ranges from 10% to 30%.

The New Hercules Extras, No. 2 to No. 7, are similar to the Hercules Specials but stronger by weight. They have been thoroughly tested in the field and are being successfully used at considerable savings for both underground and surface work. We recommend their consideration to the explosives consuming industries, and we shall be glad to furnish more complete information.

HERCULES POWDER COMPANY
(INCORPORATED)

Sales Offices: — Allentown, Pa., Birmingham, Buffalo, Chattanooga, Chicago, Denver, Duluth, Hazleton, Pa., Huntington, W. Va., Joplin, Mo., Los Angeles, Louisville, New York City, Norristown, Pa., Pittsburg, Kan., Pittsburgh, Pottsville, Pa., St. Louis, Salt Lake City, San Francisco, Wilkes-Barre, Wilmington, Del.

Hercules Powder Company, Inc.
949 King Street, Wilmington, Delaware

Please send me additional information regarding the new Hercules Extras, No. 2 to No. 7.

Name _____

Address _____

1481

In writing to Hercules Powder Co., Inc., please use post card bound in the center of this number.

The Revolving Frame, with Walls of House in Place, on the Way Down.

Here Is the Shovel Set Up and Ready to Dig. The Tackle to Which the Skip Is Attached May Be Noticed Just in Front of the Bucket.

The EXCAVATING ENGINEER

Vol. XXII JANUARY 1928 No. 1

Dropping a Shovel Two Hundred Feet

The Weston & Brooker Company Install an Electric Shovel on the Two Hundred Foot Level of Their Quarry at Columbia, South Carolina

THE hard granite quarry of the Weston & Brooker Company at Columbia, South Carolina, has two levels, one at one hundred feet and one at two hundred feet below surface. Recently they purchased a Bucyrus 50-B electric shovel to load rock from the lower level. As there is no approach or incline in the quarry, the installation of the shovel presented an interesting problem.

Material from both levels is handled in skips of six to seven-yard capacity by two cableways designed by their own organization. One of these cableways was used to put in the new shovel. The cable and anchors were designed for a 10-ton suspended load, but a 15-ton load was allowed for this job. The cable was thirty feet above surface, making a 215-foot drop to the quarry floor after allowing for a 15-foot sag in the cable. Material must be carried out 150 feet over the cableway before lowering.

The Shovel Goes Down

First the two caterpillar belts were handled in four pieces, then the propelling gears and axles were lowered — next came the base assembled, followed by the revolving frame with the house, less the roof and A-frame. After this was in place the main drum, shaft, swing and hoist motors were put in place, the roof and A-frame added, and the boom, dipper sticks and dipper completed the installation.

Material from First Level Loaded by Hand

Negro labor is used on the 100-foot level of Weston & Brooker Company's quarry to load the skips. Maximum production by this hand method is eight skips in ten hours — the Bucyrus 50-B loads one hundred skips per ten-hour shift.

Blasting is done with du Pont Gelatine Dynamite fired by Cordeau Bickford, well drill holes six inches in diameter being used for the preliminary shots. Secondary shooting is with dynamite and time fuse in jackhammer drill holes. The rock of both levels drills well but breaks in large pieces. The house of the steam shovel has been sided over with 2½-inch planks to prevent damage from blasted rock. The deposit is ledge biotite granite, French co-efficient 16, toughness 13, weight 165 pounds per cubic foot. It is used for road work

The Revolving Frame and House Sliding Out to Center of Pit.

in North Carolina, South Carolina, Georgia, and Florida.

Eight Skips in Ten Hours is the Maximum by This Method.

Weston & Brooker Company were organized in 1912, and took over the property consisting of 165 acres located three miles from the center of the city of Columbia, South Carolina. The quarry is V-shaped and will develop two faces 200 feet deep and 700 feet long. There is an overburden of clay averaging about twelve feet in depth.

Property Originally Worked as a Jetty Stone Quarry

The pit had previously been worked as a jetty stone quarry. The crushing plant in 1912 consisted of three gyratory crushers, all driven by steam. The rock was drilled by tripod steam drills and hoisted to the crushers on an incline. A cableway was erected in 1913, and the whole plant gradually electrified until only electric power was used after 1917. In August 1926 the original plant (750 tons daily capacity) was burned. The present modern electric plant was then built with five gyratory crushers in series and having a capacity of 666 tons per day.

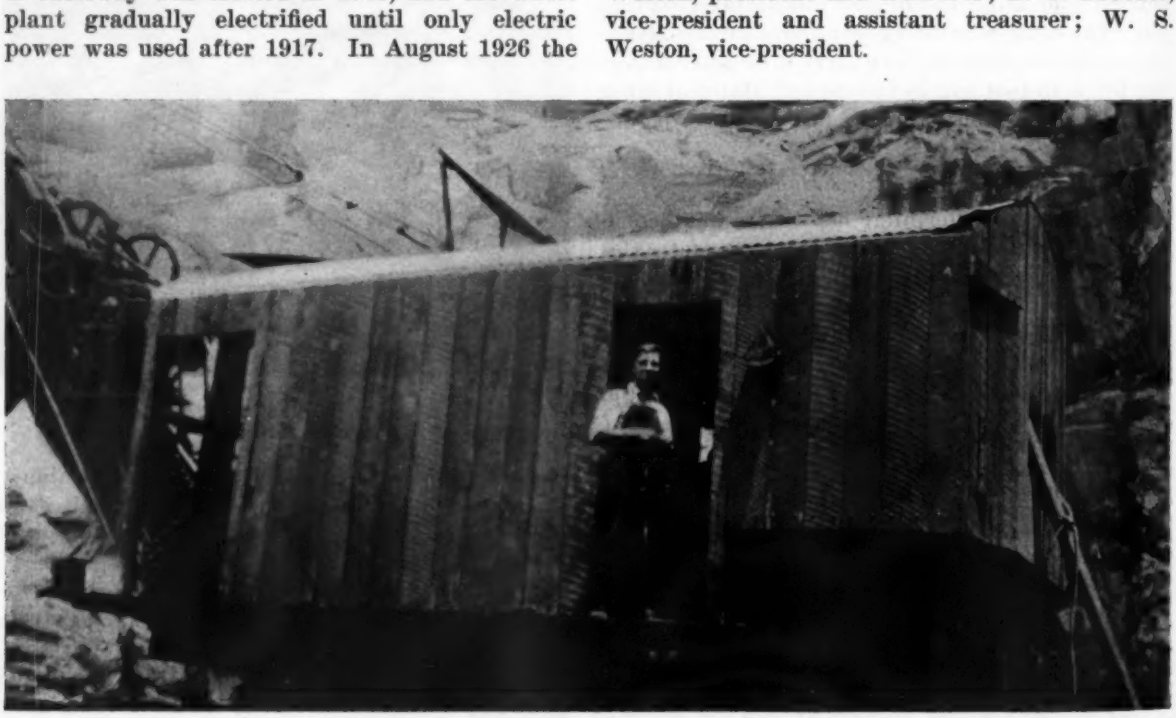
Steel Bins and Ground Storage for 40,000 Tons

The finished stone is belt conveyed to a washing plant and sizing plant, from which it goes to steel bins. These steel bins are so constructed that they provide pockets for ground storage for 40,000 tons in five different sizes. A special designed crane

The 50-B Electric Shovel Loads One Hundred Skips in Ten Hours This Way.

with 2½-cubic-yard Hayward clamshell bucket is used to handle the rock out of these bins to ground storage and into bins from storage or to trucks and cars.

The officers of Weston & Brooker are T. I. Weston, president and treasurer; B. O. Brooker, vice-president and assistant treasurer; W. S. Weston, vice-president.



Notice the Safety Siding of 2½-inch Planks.

Relocation Work on Worcester-Hartford Turnpike

The Improvement of the Road Between Hartford and Worcester Will Make Possible the Shortening of the Distance Between Boston and New York Twenty-five Miles

At Work on One of the Larger Cuts — a Portion of the Finished Grade and Layout of Road Can Be Seen in Background.

THE State Highway Department of Massachusetts has under construction at this writing the first of its projects to shorten the distance between Boston and New York. Traffic at present goes over either the shore road by way of Providence, Rhode Island, and New London, Connecticut, or the inland route through Worcester, Springfield and Hartford. Both of these routes are rather indirect and circuitous, and the road surfaces are becoming very rough. Rather than rebuild these extensively, it has been decided to improve the old Worcester-Hartford Turnpike, thus, by giving a more direct route to New York, cutting the distance about 25 miles. The first step in this reconstruction, a three-mile relocation, is now well under way.

Lanza Making Good on New Venture

The contract for this project was awarded to Frank Lanza & Sons, contractors, Boston, Massachusetts. This company, organized in 1918, has become one of the leading excavating contracting firms in Boston. The Charleston job is quite a large order, but the experience gained as subcontractors on similar projects, together with the excellent progress made with the job thus far, has proven that the contract was placed in the hands of a competent organization.

Varied Materials Encountered

The excavation work involves the moving of a wide variety of materials, including common, clay and rock. Through the entire length of the cut-off the country is rough and hilly, calling for considerable cut and fill work. Some of the cuts are 25 and 30 feet deep. The total yardage amounts to about 67,000 yards of earth, 20,000 yards of ledge, and 15,000 yards of gravel borrow. The largest cut on the job contains 17,000 yards. Besides the excavation and grading work, the job also consists in placing a trap rock road surface and

A View of the Road Ready for Gravel Cushion and Trap Rock Wearing Surface. The Stone Fill Is of Field Stone and Is One Foot in Thickness.

the usual construction of drainage structures, in this case amounting to about $20,000. As shown in one of the photographs, a fill of field stone is put down to a depth of one foot to alleviate as much as possible the frost action experienced in this region. A gravel cushion will be put down over this and then the trap rock wearing surface.

Four shovels, three Erie type B and one Bucyrus 41-B, load into fifteen trucks, including both Macks and Sterlings. Two Buffalo Pitts gasoline rollers are used to pack down the grade. In ledge

Al. Lanza, H. A. Weaver and Louis Lanza.

excavation, where blasting is necessary before the shovels can go in and take out the material, Ingersoll-Rand air compressors and drills put down the holes.

Rains Impair Work

The continual rains during the month of August hampered the work a great deal, and the yardage moved was rather under schedule. It is expected that all the heavy cuts and fills will be finished by the end of this year and the surfacing applied next year. During the month of September rapid progress was made, and the time lost during August, due to bad weather, was picked up again. Over 40,000 yards of earth and 5,000 yards of rock were moved in September.

The resident engineer on the job is Mr. H. A. Weaver, long associated with the New Haven Railroad, and having extensive experience on earth-moving projects. He is assisted by E. Hossbach, D. Sweet and J. J. Holland. The work is

The Bucyrus Machine Taking Out the First Lift in a Twenty-five Foot Cut.

under the direct supervision of Mr. A. Lanza, and the equipment care and cost work is being handled by Mr. Louis Lanza, with Mr. Frank Lanza having general supervision.

One of the Several Ledge Cuts After a Blast, Ready for the Shovel.

Grading Logging Roads in Northern Wisconsin

The Goodman Lumber Company Installed a Diesel Shovel to Grade Logging Roads Necessary to Open New Timber Tracts

Taking a Cut Under a Railroad Trestle in the Early Stage of the Work.

THE Goodman Lumber Company, located at Goodman, Wisconsin, is a manufacturer and wholesaler of hardwood and hemlock lumber, cedar products and lath. The company was organized in August, 1907, and started operating their sawmill in June the following year. The officers are: C. A. Goodman, president; W. O. Goodman, vice-president; R. B. Goodman, secretary; J. F. Goodman, treasurer. At the present time they operate a sawmill, lath mill, wood mill, shingle mill and planing mill, and in connection a chemical plant. The sawmill is entirely constructed of steel and concrete, and contains two bands and two resaws. The chemical plant consumes 50 cords of chemical wood each 24 hours. The products obtained are wood alcohol, acetate of lime, and charcoal. The annual cut is approximately 30,000,000 board feet.

Company Takes Over New Property

The company operates their own railroad and have about 100 miles of standard gauge track, using four locomotives, one Baldwin and three Shay-geared engines, and 125 standard log flats. In the latter part of 1927 the company took over a new timber area north of Goodman. This tract contains some 375,000,000 feet, and is the largest belt of timber in one block in that part of the country. At the present time they are engaged in building a new main line of railroad extending twenty-five miles north from Goodman, up into the new tract of land.

An Excellent View of a Finished Portion of the Line.

They started work on this new line of railroad on the 20th of May, at which time they installed a Bucyrus D-2 1-yard Diesel shovel to take care of the grading work. In the early part of October they had graded eight miles of the line.

At Work in a Deep Cut. The Loading Track Is Shown at the Left.

Shovel Encounters Cut in Swamp

The cuts thus far have varied between three and twenty feet, the material encountered consisting of mixed clay, sand and gravel. The shovel started work about 1,000 feet from the main line of the Soo Line Railway and excavated under their tracks. In this early part of the work they encountered a cut of about three feet which had to go through a swamp. This, they accomplished by using a set of eight mats. Each mat was constructed of four pieces of 4 x 10-inch, 12-foot hardwood plank, bolted together with three cross pieces of the same material. Each mat has a four-foot piece of chain attached to one end, for the purpose of hooking to the dipper to swing around in front of the machine.

Shovel Served by Flat Cars with Unloading Plow

Where the cuts are light, the shovel just casts the material on the banks. With the heavier cuts, however, a track is laid along the top of the bank, and a train is used to haul the material away for use in building up fills. A 36-ton geared engine with seven flat cars, equipped with an unloading plow, is used for haulage. The output from the machine is reduced by car delay in deep cuts where casting is impractical, due to the fact that it has to remain idle while the train is on its way to a fill and the material shoved off with the unloading plow. The machine works one ten-hour shift, and when loading material on cars handles from 700 to 800 yards per shift. When using it

(Continued on Page 21)

The Material Here Was All Cast to the Sides.

Excavating for 36-Story Building in Pittsburgh

R. M. Netherland Digs 39,000 Cubic Yards of Rock to Sink Grant Building Foundations Down Fifty-Five Feet Below Street Level.

Notice the Rock Formation and the Ingenious Method of Shoring.

THE Grant Building, under construction facing Grant Street at Fourth Avenue, Pittsburgh, will be one of the largest in that city. Erection of this building is under contract to Thompson & Sterrett Construction Company of New York City, and the excavation has been sublet by them to R. M. Netherland Company of Pittsburgh at a cost of approximately $225,000.

The depth of the excavation is 55 feet below street level, the area being 171 feet by 140 feet. The material consists of 39,000 cubic yards of solid rock. In addition to this the subcontractor will put in piers containing 2,200 yards of concrete and going down 19 feet below the 55-foot level.

Unique Method of Shoring

Shoring is necessary and a very novel and efficient means of handling has been devised. Holes are drilled into the sandstone rock and tie rods inserted in these holes. The shoring is then erected and held in place by these rods. In this way outside bracing is done away with and the pit left clear for excavating and construction operations. The method is also very economical, as it saves a great deal of timber which would otherwise have been required for bracing, as well as the labor of putting these braces in place.

Excavating is done with Bucyrus 30-B and Bucyrus 20-B steam shovels. The 30-B is working double shift, with Jack Seavor and A. A. Van Briggle, operators. The 20-B, Jack Van Briggle,

General View of Grant Building Excavation

operator, is being used as a clamshell in excavating for the pier foundations.

Drilling and Blasting

Four air compressors, one Ingersoll-Rand and three Gardner-Denvers, drive five Ingersoll-Rand rock drills in continuous operation. Shooting is done with du Pont 40 per cent dynamite fired with electric exploders. Holes are drilled to an average depth of 10 feet and usually fired in pairs. The drilling and blasting handled in this manner has worked out very satisfactorily. Fifteen trucks, Macks and Sterlings, haul out the material, which is disposed of at Born's Dump, Squirrel Hill.

A total of one hundred and fifty men are employed under Mr. R. M. Netherland, who is personally in charge of the work of excavation. Mr. S. H. Shovell, is chief engineer.

Other Netherland Jobs

It will be remembered that it was R. M. Netherland & Company who did the excavating for the 29-story Cathedral of Learning at Pittsburgh about a year ago. Many other tough jobs have gone down beneath the R. M. Netherland shovels.

At the present time he is excavating, not only for the Grant Building, but for the Pittsburgh Hotel where the excavation is in almost solid rock, and the new Keystone Athletic Club, another large job. Bucyrus 20-B's are digging at both these places.

Loading a Bit of the 39,000 Cubic Yards of Rock at the Grant Building.

R. M. Netherland and View Showing Excavating for the Pittsburgh Cathedral of Learning.

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THE EXCAVATING ENGINEER PUBLISHING CO.
F. O. WYSE, Manager-Editor
South Milwaukee, Wisconsin
Printed in the U. S. A.

And Here Is 1928

At this time of the year it is natural for most of those in industry to look ahead and try to size up just what is in store for them during the new year.

We have been through a couple of months of slight reaction in business conditions. It is interesting, however, to take stock of the factors in the present situation and see to what they point.

Money rates have remained practically unchanged and at the very moderate levels which have been in vogue practically all of this year. Call loans on the New York stock exchange have been 3½ per cent and commercial paper has been at four; an end-year increased activity is to be expected by general business.

The stock market, aided, of course, by this easy money, reacted nicely from the slump of a few weeks ago.

Retail and wholesale trade was retarded by very unseasonable weather during the latter part of the year. Apparently, however, purchasing power is high and the holiday trade should break previous records as it did last year. The same warm weather that has been unfavorable to retail trade has had a very wholesome effect on agriculture, and the improvement in this industry will exert a favorable influence on general business.

Steel production is less than usual, but the rate of production is not reclining. Expected improvement in the automobile industry should stimulate steel operations as well as other business.

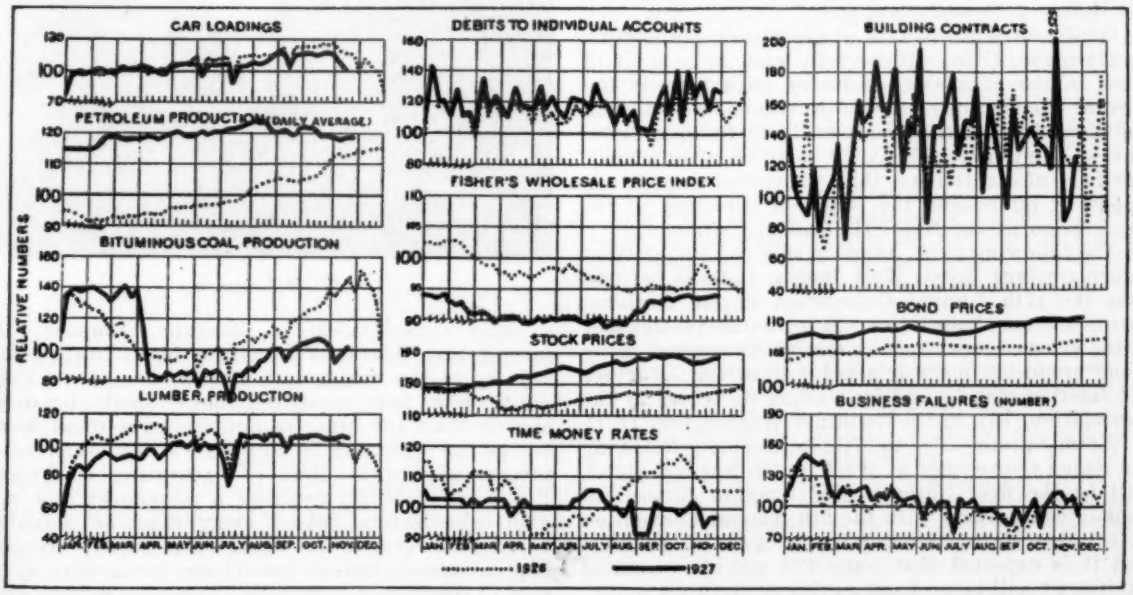
Building construction promises to continue in good volume; stocks of goods on hand are very small and must constantly be replenished; foreign trade is in a healthy condition, and, perhaps the most important feature of the situation, is evidence of a strengthening conviction on the part of business men that the present moderate reaction will not be serious. These factors are what we usually find before a period of expansion; and there is every reason to expect a good year in 1928.

No one of the old yard sticks of business can today be relied upon individually. This is well pointed out by the National City Company as follows: "No better proof of this can be cited than the activity in the cotton spinning industry during the past year, the recovery of the shoe and leather industry, the steady growth of industries like the manufacture of tobacco products, cement, and food products, and the many other forms of productive, distributive, and professional activity too numerous to mention that have gone on undisturbed and in the sum total bulked large enough to measurably offset the lessened activity in steel, automobiles, and kindred lines."

The total volume of construction contracts awarded in the 37 states east of the Rocky Mountains during November amounted to $466,393,400, according to F. W. Dodge Corporation. These states represent about 91 per cent of the total construction volume of the country. November's record showed a drop of 17 per cent from the total for October of this year, but was only 4 per cent under the November 1926 record.

WEEKLY BUSINESS INDICATORS

[Weeks ending Saturday. Weekly average 1923-1925=100]



Analysis of the November building record showed the following important classes of work: $214,962,700, or 46 per cent of all construction, for residential buildings; $76,089,000, or 16 per cent, for public works and utilities; $52,890,700, or 11 per cent, for industrial projects; and $43,520,800, or 9 per cent, for commercial buildings.

During the past eleven months there was $5,825,691,300 worth of new building and engineering work started in the 37 states east of the Rocky Mountains, as compared with $5,843,518,900 for the corresponding period of last year, the decrease being less than one-half per cent.

New work contemplated during November in these states amounted to $827,456,700, being an increase of 36 per cent over the amount reported in the preceding month and a gain of 31 per cent over the amount reported in November of last year.

January Conventions

The month of January certainly seems to be one month in the year when those of the industry of excavation can get together and compare notes; get together and have a good time and take the opportunity of shaking hands all around with themselves and with their friends, the manufacturers. Those in a single one of the many industries in which excavation plays its important part do not realize the number of conventions held during the month of January.

On January 4, 5 and 6, the National Sand and Gravel Association holds its 12th Annual Convention at the Book-Cadillac Hotel, Detroit, Michigan. Here some seventy manufacturers will display their product for those who attend the convention. Further information concerning this convention may be had from the Executive Secretary of the Association, Munsey Building, Washington, D. C.

On January 9th to 13th at the Public Auditorium in Cleveland, Ohio, will be held what is to most of those in the excavating industry an extremely important convention — the 25th Annual Convention and Exposition of the American Road Builders Association, familiarly referred to as "The Road Show." Further information on this convention may be obtained by addressing the Business Directory of the Association at the Hotel Hollenden, Cleveland.

The following week, January 16th to 19th, at West Baden Springs Hotel, West Baden, Indiana, will be held the 11th Annual Convention of the National Crushed Stone Association. This annual get-together of the crushed stone men is one which a great many stone producers make it a point to attend. Further information may be had by writing Secretary of the Association, 651 Earle Building, Washington, D. C.

From January 23rd to 27th, immediately following the Stone Convention at West Baden Springs Hotel, will be the first National Construction Exposition held in conjunction with the 9th Annual Convention of the Associated General Contractors of America, and it is expected that some 130 manufacturers of equipment will be on hand at this convention.

Managements of each of these conventions have extended invitations to all those interested, and, as far as we know, there is no formality needed to attend any of them. Although no shortage of rooms is expected it would probably be advisable to obtain hotel reservations in Cleveland before going to the Road Show. In this connection one should address the Hotel Committee, 304 Chamber of Commerce, Cleveland, Ohio.

W. W. Coleman Heads New Company

Bucyrus-Erie Company, born with the new year, begins its activities with the following officers:

W. W. Coleman, President;
E. K. Swigart, Senior Vice-President;
F. B. McBrier, Vice-President;
A. C. Vicary, Vice-President;
G. A. Morison, Vice-President and Treasurer;
D. P. Eells, Vice-President;
W. M. Bager, Vice-President;
J. G. Miller, Secretary.

W. W. Coleman will be Chairman of the Board of Directors, W. B. Given, Jr., Vice-Chairman of the Board of Directors, and M. D. Follansbee, General Counsel.

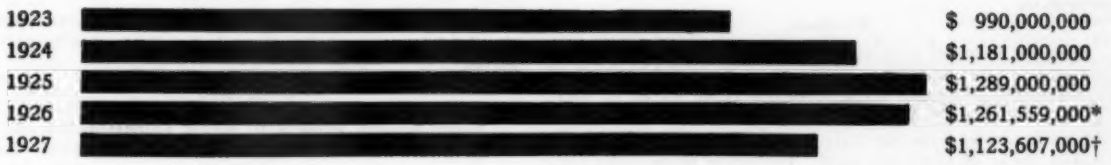
W. W. Coleman

This consolidation of Bucyrus Company, the largest and oldest manufacturer of excavating machinery in the world, with Erie Steam Shovel Company, who have produced more small revolving shovels than any other manufacturer, without doubt marks the beginning of an era of a new standard of greater service to users of excavating machinery. Financial stability, assuring a permanent and reliable organization behind every machine manufactured; enlargement of world-wide service, bringing expert representatives into closer touch with every part of the field of excavation; increased modern shop facilities, insuring prompt deliveries; and a complete line of equipment, including all sizes from the smallest to the largest, as well as all types of excavators under all kinds of power, will enable this new company, inheriting as it does all the long experience of the Bucyrus and Erie organizations, to be of the greatest value to the excavating industry.

Excavation on Roadwork for 1928

THROUGH the co-operation of the various State Highway Departments throughout the United States, *The Excavating Engineer* presents a brief outline showing estimates of the excavation for highway work contemplated for the coming year in the various states listed below. Unfortunately for the purposes of this survey, a number of states do not formulate their plans until later in the year. However, we are fortunate in being able to present the programs of a majority at this time, and others will be published in later issues as they become available.

In general the data presented gives figures for Federal, State and County work, but does not include such road construction as is planned by cities and towns. In addition to the amount of excavation that is estimated below it is probable that certain further excavation will develop after the work is under way.



Amounts Spent for State and Local Roads for Past Five Years.

(These figures do not include city streets)

***1926 figures are compiled from actual total for state highways as furnished by Bureau of Public Roads to which is added estimated total for county, town and local roads.**

†1927 figures are the mid-year estimate of the Bureau of Public Roads, and our own estimate at this time would be about 15 per cent higher, which would bring the total up slightly over the 1925 figures and making 1927 a record year.

Arizona

Plans for construction involve expenditure of $2,228,689.68 on 180.3 miles of new road. As the State Highway Commission at Phoenix is just getting their construction program under way detailed estimates are not available at this time.

California

Funds for highway construction in this state are appropriated for a biennial, or two-year, period and finances are arranged on the fiscal year basis ending June 30th. It is, therefore, somewhat difficult to furnish information relative to proposed construction on a calendar year basis. Of the $14,206,000 appropriated for reconstruction during the present biennium, there remains $9,206,000 available for expenditure until June 30, 1929. Funds for new construction available for the balance of the biennium are estimated to amount to $13,000,000. Reconstruction projects include some steam shovel work. However, the greater part of the money is spent on pavement widening and little steam shovel work is necessary.

Colorado

Probably 200 to 300 miles of State and Federal Aid Highways will be built or reconstructed during 1928 at a cost of $3,000,000 to $3,500,000. In addition to this there is $2,000,000 to $2,500,000 to be expended for completing unfinished contracts. These figures are rough estimates based on usual programs with present conditions considered. The 1928 budget has not yet been made.

Connecticut

The Highway Department of Connecticut advises that it does not, in any event, forecast its road-building program.

Delaware

Information regarding the road-building program in Delaware will not be available until the first of April.

Idaho

At an expenditure of $1,100,000, Idaho will build 118 miles of new roads besides spending $720,000 for 110 miles of reconstruction. 700,000 cubic yards is estimated for new construction and 200,000 cubic yards for reconstruction, 30 per cent of these figures representing the approximate percentage of steam work. There is 210,000 cubic yards to move on unfinished contracts at a cost of $350,000 which has not been included in above. Estimates are for State and Federal Aid roads only.

Illinois

The Division of Highways is not in a position at this time to furnish statistics covering construction for the coming year.

Kansas

For Kansas a program of 700 miles of new roads are planned at a cost of approximately $6,500,000. About 5 per cent of the 3,500,000 cubic yards excavation involved is suitable for shovel work. There is 2,000,000 yards, in addition to the above, to be completed on old contracts at a cost of $60,000. This rough estimate only covers work on the State System in which the State is interested to be paid for by State, Federal Aid and County fund.

Kentucky

The State Highway Department of Kentucky has built during the year 1927 63 miles of reinforced concrete at a cost of approximately $30,000 per mile; 17 miles of native rock asphalt at a cost of approximately $25,000 per mile; 70 miles of bituminous macadam at a cost of approximately $24,000 per mile; 60 miles of waterbound macadam at a cost of approximately $18,000 per mile; 179 miles of traffic bound macadam at a cost of approximately $8,000 per mile, 267 miles of gravel surfacing at a cost of approximately $15,000 per mile and 420 miles of grade and drain at a cost of approximately $12,000 per mile — a total of 1076 miles at a cost of $14,500 a mile (approximately).

No very definite program is worked out for the new year as the administration is now changing, but a similar program for 1928 is anticipated, and will consist of the completion of contracts carried over and a great number of new contracts. Almost all Eastern Kentucky grading is steam shovel work, and practically half of the mileage for grade and drain work during the next year will be suitable for steam shovel handling.

Maine

To cover construction of 300 miles of new roads Maine expects to spend about $3,825,000. $700,000 will be spent on 10 miles of reconstruction, widening, etc. New roads require excavation of 825,000 estimated cubic yards and reconstruction, an additional 56,000 cubic yards. Shovels will

handle 15 to 20 per cent of this material. There remains from 1927, unfinished contracts for 50,000 cubic yards to move at $1.10 per yard. State expenditures are estimated at $3,350,000, Federal aid at $575,000 and township at $600,000.

Maryland

In Maryland approximately $3,500,000 is expected to be spent for 125 miles of new roads. Expenditure of $1,500,000 is planned for reconstruction of 100 additional miles. Excavation for new roads amounts to about 600,000 cubic yards, 50 per cent of which is shovel work.

Massachusetts

Construction work for the new year has not been definitely decided on.

Michigan

The 350 miles of new roads and 150 miles of reconstruction planned for Michigan will cost in the neighborhood of $12,000,000 and involve about 3,000,000 cubic yards of excavation. Of this, 75 per cent will require shovel operation. Old work carried over amounts to another million yards contracted for at 46 cents per yard. Estimates made cover only State and Federal Aid appropriations.

Mississippi

With practically no reconstruction planned, Mississipppi expects to spend $2,500,000 for approximately 175 miles of new highway involving 10 to 15,000 cubic yards per mile — probably totaling in the neighborhood of 220,000 cubic yards. Little or no shovel work can be expected in this yardage, however. There still remains some 300,000 additional cubic yards to move on old contracts at a cost of $900,000.

Montana

In Montana new highway construction of 225 miles is planned at a cost of some $2,200,000. Reconstruction of 10 miles will cost about $30,000 more. Excavation amounts to approximately 2,000,000 cubic yards, about 15 per cent of which will be shovel work. There is 1,060,000 cubic yards additional still to move on unfinished contracts at a cost of another $2,000,000, which includes cost of surfacing and drainage structures. Federal Aid roads only are covered by this estimate.

Nebraska

An approximate estimate of the work to be performed on the roads of the State Highway System with State and Federal Aid follows: 200 miles of grading and 400 miles of sand and gravel surfacing to cost $1,500,000, on new contracts, with 100,000 cubic yards costing $20,000 to move on old contracts. The new work will approximate 200,000 cubic yards with 5 to 10 per cent of this suitable for shovel operation. In addition there may be a small amount of work paid for with funds other than State and Federal Aid.

Nevada

Besides constructing 84 miles of new highway at a cost of approximately $600,000, Nevada plans 125 miles of reconstruction at a cost of $312,500. The new roads require 504,000 cubic yards of excavation with 90,000 cubic yards in the reconstruction. There is no shovel work involved, yardage being suitable for plow and fresno work. In addition 394,000 cubic yards on unfinished contracts are carried over, which will cost approximately $219,700. Nevada also proposes to oil 125 miles of gravel road by the turn-over method at a cost of approximately $227,500 and will spend $50,000 for one concrete and steel grade separation. These estimates are for State, Federal Aid and County roads.

New Hampshire

New Hampshire expects to build 50 miles of new roads and reconstruct 20 miles of present roads. The State expects to spend approximately $3,000,000 and towns will add $5,000,000 more.

New Mexico

Approximately 220 miles of new roads will be built at an expenditure of $3,000,000 during 1928. 25 miles of reconstruction (mostly surfacing) is planned at an expense of $250,000. The new roads will require about 2,000,000 cubic yards of excavation to which may be added another 10,000 cubic yards for the reconstruction program. Besides this, 100,000 cubic yards of excavation on road work at a cost of $25,000 is carried over from uncompleted contracts. These estimates include only State and Federal Aid work.

New York

Here, about 360 miles of new roads are planned to cost approximately $40,000,000. 325 miles of reconstruction is expected to cost $56,000,000. These estimates include State, Federal Aid and County appropriations.

North Carolina

Work depends on appropriation made by next session of the Legislature and the Commission is unable to give estimates.

North Dakota

North Dakota expects to spend $3,000,000 for 550 miles of earth and 550 miles of gravel roads during 1928. Excavation is estimated at 7,500 cubic yards, very little of which will be suitable for shovel operation. There is also considerable work on unfinished contracts covering about 134 miles. About 25 per cent of this program is State, 50 per cent Federal Aid and 25 per cent County.

Ohio

1928 construction will add or improve 250 miles of hard surface and 200 miles of traffic bound roads to Ohio's state highways at an estimated expenditure of $13,000,000. Of this, 125 miles will consist of reconstruction, widening, etc., requiring $2,000,000 of the above-planned appropriation. One contract to be let in January is estimated at $400,000, and is altogether shovel excavation located in Belmont County. Estimates above are for State and Federal Aid work only.

Pennsylvania

The State of Pennsylvania plans a year's program of 500 miles of new roads costing $22,000,000. About 100 miles of reconstruction, widening,, etc., will cost an additional $4,500,000. Excavation for new roads involves 3,700,000 cubic yards, and reconstruction 500,000 cubic yards, 95 per cent of which will be shovel work. Uncompleted contracts for 1,000,000 cubic yards will add $900,000 to these expenditures. The above figures are approximate estimates for State, Federal Aid and Township operations.

Rhode Island

The State Board of Public Roads expects to complete 26.6 miles of new roads and approximately 16 miles of reconstruction during 1928. The former will require about $1,300,000 expenditure, the latter $600,000. Excavation will total about 350,000 cubic yards, of which approximately 270,000 cubic yards is in the new construction. Practically all of this is suitable for shovel operation. These estimates cover State Highway construction, including Federal Aid, and also contains figures for work contracted in 1927 and carried over into 1928. There are no county organizations in Rhode Island and we have no estimate of township work.

South Carolina

Plans for South Carolina call for constructing 300 miles of hard surface type and 100 miles of earth-type roads at an estimated expenditure of $8,000,000. In addition 300 miles of hard surfacing are to be placed on previously improved earth roads. This work will involve about 2,500,000 cubic yards of excavation of which 50 per cent is suitable for shovel operation. In addition there are 2,000,000 cubic yards of uncompleted work under contract to cost $600,000. Figures cover State and Federal Aid roads only.

South Dakota

The State of South Dakota plans 400 miles of new construction for the coming year at a cost of about $2,000,000. There will also be 50 miles of reconstruction costing some

$125,000. This work will involve 3,800,000 cubic yards for the new work and 300,000 cubic yards for reconstruction. Of this about 2 per cent will be shovel excavation. There is also 200 miles to be completed on old contracts costing $700,000. The $2,000,000 covering cost of new construction includes graveling as well as grading. Average costs in this state show approximately $3,500 per mile for grading and $1,500 per mile for graveling.

Tennessee

1928 plans are not made. Department of Highways does not wish to announce estimates.

Utah

In Utah 100 miles of improved road is programmed at an approximated cost of $1,500,000. This will require about 1,000,000 cubic yards of excavation, 75 per cent of which will be suitable for power shovels. About one-third of this work to be let in 1928 will run over into 1929 for completion. 300,000 cubic yards remain to be moved on contracts already let at a cost of $100,000. Additional unfinished road work other than excavation amounts to another $400,000.

Vermont

Plans for 1928 contemplate expenditures of about two million dollars for approximately forty miles of hard surface roads which will require excavation of four to eight thousand cubic yards of which about fifty per cent will be suitable for shovel operation.

The amount to be spent at this writing is uncertain due to the damage done by floods.

There is very little work remaining on the contracts for last year. The above estimates cover State and Federal Aid work only.

Washington

Highway work for 1928 will be determined by Legislature which meets in January.

West Virginia

State and Federal aid expenditures will not exceed three million dollars for about sixty-five miles of grading and about eight miles of paving. Slightly above two million dollars will be spent for maintenance including some reconstruction and widening. Work now under contract includes one hundred miles of grading and seventy-one miles of hard surfacing. In addition to the above, county work will probably run to five million dollars, at least one-half of which will be grading.

Wisconsin

According to the records set up for Federal Aid and State Aid construction for 1928, there will be approximately 173 miles of concrete and 261 miles of gravel constructed, representing an approximate expenditure of $10,325,000. In addition to this, however, there will be approximately 77 miles of concrete built by the counties with bond issue funds, costing probably in the neighborhood of $2,310,000. The balance of the gravel work to be built by the counties without direct participation by the state is unknown at this time but will represent a greater mileage than is being built with Federal and State funds.

Wyoming

Wyoming expects to build 190 miles of new road running 14,000 cubic yards of excavation to the mile (2,660,000 cubic yards total) and costing approximately $2,200,000. Reconstruction of 50 miles will cost an additional $200,000. Only about one per cent of excavation is suitable for shovels.

Mexico and Cuba to Be Represented at Cleveland

Mexico, as well as nations of South and Central America, is sending delegations to the convention and road show of the American Road Builders' Association to be held in Cleveland during the week of January 9th.

Mexico hopes to profit by a study of the road construction methods used in the United States. The delegation will also assist in materializing plans for an international highway through the United States and Mexico to Central and South America.

The Mexican Government will send a complete exhibit of the national highway system to the exposition. The exhibit will portray the progress of road building in Mexico and demonstrate construction plans for the future.

Cuban road officials have also accepted an invitation proffered by the American Road Builders Association to attend the convention and road show.

The Cuban delegation will arrive in the United States shortly after January 1st, and will study road construction methods and inspect materials and machinery manufactured by American concerns.

Cuba plans the expenditure of more than $70,000,000 on her Central Highway.

Our Front Cover Illustration

This month we reproduce on our front cover a photograph showing a Bucyrus 41-B clamming for one of the shore piers of the Cincinnati-Covington Bridge. This work on the Ohio River crossing of the Chesapeake & Ohio at Cincinnati, Ohio, is being handled by the U. G. I. Contracting Company of Philadelphia. The contract calls for excavation and the construction of the substructure, consisting of one new river pier and two new shore piers, the extension and encasement of one existing river pier, the encasement of the top stem of one existing river pier, and other incidental work.

Grading Logging Roads in Northern Wisconsin

(Continued from Page 14)

for casting, it will grade from 400 to 600 feet per day in cuts averaging from four to six feet in depth. On one shift while the shovel is grading, it consumes approximately 20 gallons of fuel oil.

William Nelson is the operator of the shovel and his son, Dale Nelson, is the oiler. Mr. Nelson had never operated a shovel before, but had experience with other kinds of machinery and is a good mechanic. He became entirely familiar with the machine in a short while. He makes about three passes per minute while loading with a swing well over 90 degrees.

Mr. Houghton is general manager for the Goodman Lumber Company; Mr. Hoyt is superintendent of transportation; and Mr. Kingston is in charge of field operation. We are indebted to Mr. Hoyt for the information used in preparation of this article.

Six Forward Steps in the Excavating Field

The advance in any industry is marked by the improvements in the machinery used by that industry. In furnishing material for preparation of a general survey of the achievements made during 1927 in the excavating field, one company (Bucyrus Company of South Milwaukee, Wisconsin) outlines the following marked advances:

1-Yard Diesel Shovel

A machine combining extraordinary outputs with extremely low operating cost, brought about partly by remarkable fuel economy, was introduced in the 1-yard D-2 Diesel shovel. The motive power of this machine is a four-cycle oil engine, operating at the low speed of 400 r.p.m.

1¼-Yard Diesel Shovel

Following this came the announcement of a 1¼-yard E-2 Diesel shovel equipped with a four-cycle oil engine running at the speed of 350 r.p.m. This shovel is intermediate between the 1-yard shovel and the 2-yard 50-B size so widely used in quarries and railroad operations.

New 2-Yard Electric Shovel

A Ward-Leonard, direct-current, field-control machine of the 2-yard size (known as the 50-B) equipped throughout with separately excited shunt-wound motors was introduced. This type of electric drive does away with the constant use of brakes and clutches, yet enables the dipper to drop rapidly to the pit. The electric regenerative braking at the bottom is smooth, positive and accurate.

Diesel Electric Hydraulic Dredge

For the dredging industry a thirty-inch Diesel electric hydraulic dredge was built. This machine, the first of its kind afloat, is equipped with four, 1,150 horse power, oil engines which drive generators supplying current for the many motors running the various units of machinery.

12-Yard Stripping Shovel

For the coal and mining field came the announcement of a 12-yard stripping shovel. This machine is remarkable because of the fact that, although of 12-cubic-yard dipper capacity (one half again as large as an 8-yard dipper) it has the same speed in thrust, hoist, swing and return as the fastest 8-yard machine built. This means an actual increase of 50 per cent in machine output and makes it possible to open coal fields hitherto impractical to mine. To develop this speed with the greatly increased load, a number of revolutionary, new and interesting features have been introduced. Two independent hoists are provided — one on each side of the dipper — the equivalent of a bail extending up over the boom point and down to the main drum. Two complete swing machinery units enable the machine to swing rapidly but with ease. The boom is supported by cables at the shipper shaft as well as at the point; this takes out the twisting strains where they are put in by the dipper handle. The 12-yard dipper, without a rivet in it, is made of two steel castings.

Consolidation of Bucyrus and Erie Facilities

During the year announcement has been made of the merger of Bucyrus Company and Erie Steam Shovel Company. This merger holds great promise for the industry and is described on another page of this issue.

DEVICES YOU OUGHT TO KNOW ABOUT

New Power-Operated Front Blade Back Filler

The Miami Trailer-Scraper Company of Troy, Ohio, announce a new power-operated front blade back filler. This piece is designed for attachment to the Model 20-K Cletrac tractor.

The blade is controlled by the Miami power winch, which attaches to the power take-off on the rear of the tractor. The positive control of the blade through the Miami power winch enables the tractor driver to instantly raise or lower the blade as desired. This can be done with the tractor, either in forward or in reverse motion. The tractor never stops.

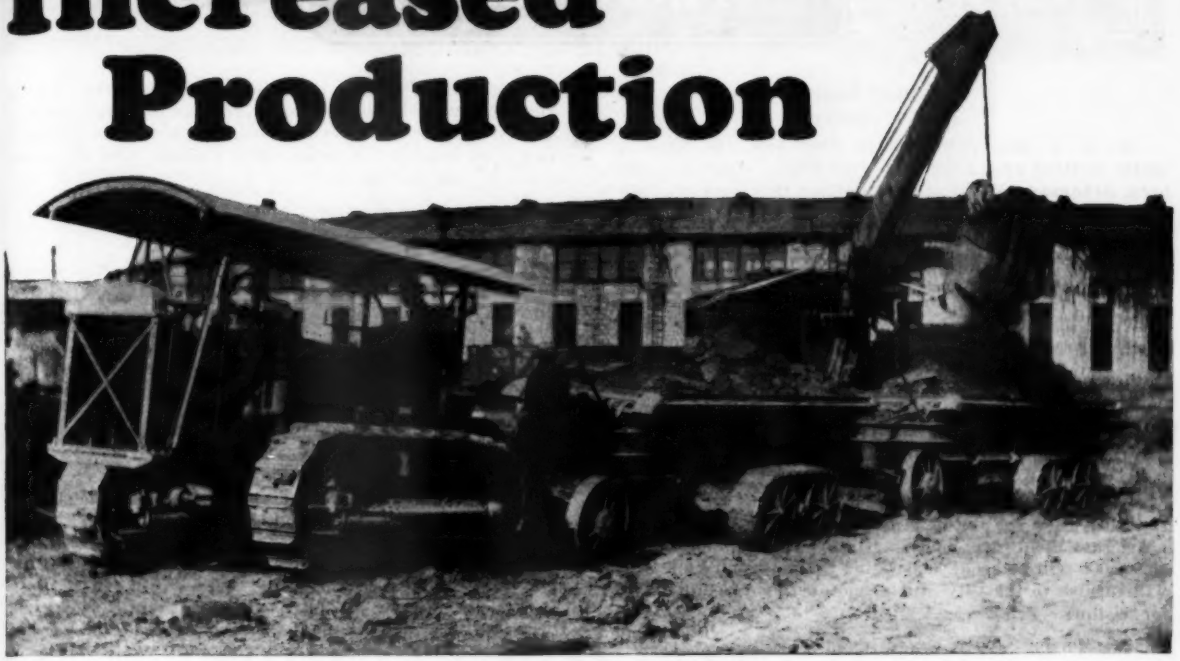
The manufacturers report that on an actual test one man using the Model 20-K Cletrac tractor and Miami front blade back filler back-filled a sewer trench measuring 3 feet wide by 6 feet deep at the rate of 100 feet per hour.

This unit is not only suitable for trench back-filling work but may be used for leveling purposes, for small grading operations, for spreading gravel, crushed stone, etc., for pushing dirt over fills and for moving snow.

New Westinghouse 3-KW Turbine Generator Unit

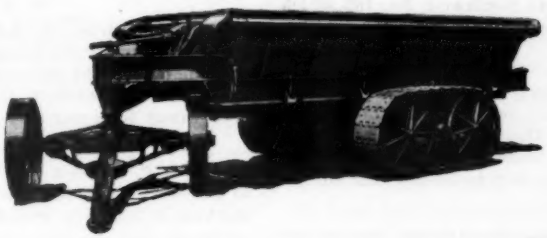
A direct-connected turbine generator unit having a rating of 3 kw. has been recently placed on the market by the *South Philadelphia Works of the Westinghouse Electric and Manufacturing Company.* This apparatus has been developed to meet the demand for a small non-condensing steam turbine generator lighting set for use with oil well rigs, steam shovels, isolated pumping plants and for general outdoor construction work. They are also suitable for marine application, and can be installed aboard tug boats, lighters, yachts, river craft and also for standby service in port on the larger type vessels. The generator coils are specially impregnated, and all parts requiring such protection are heavily sherardized to meet the conditions of applications of this nature.

Increased Production



Western 7-yard Crawler Dump Wagon Used Tandem in Railroad Work.

Increased production is the pot of gold at the end of the rainbow. You can find it by using Western 7-yard Crawler Dump Wagons. This wagon increases production. Its broad crawler wheels will carry the huge 7-yard load any place a crawler-type tractor can operate. Mud, sand or rough ground do not stop this wagon. Hot weather does not affect it. A 24-hour day is possible with a tireless motorized outfit.



The operating view shows Western 7-yard Crawler Dump Wagons in railroad work at Emporia, Kansas. They were put to work when round wheel wagons could not be operated in the mud. The Crawler Wagons were able to carry on in spite of poor haulage conditions. They increased production.

You will find this wagon on display at the Cleveland Road Show, Jan. 9th to 13th. If you can't be there to see it, the next best thing is Bulletin 27-PE that gives detailed explanation. Write today.

Western

Western Wheeled Scraper Company

Dump Cars and Grading Equipment

Aurora — Illinois

In writing to Western Wheeled Scraper Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE

Arkansas Notes

BY F. W. KNABLE

Mr. M. J. Hinson, contractor, Muskogee, Oklahoma, recently received award for road work located near Mountainsburg, Arkansas. Mr. Hinson is starting this work off with a new Thew-Lorrain 75 gasoline-operated shovel.

Ernest Euler, contractor, Mansfield, Missouri, recently received award for road work in the State of Arkansas.

Work on the erection of the new American Portland Cement Corporation's cement plant, located at Forman, Arkansas, is progressing very nicely. Robert E. Hunt Engineering Co., New York Life Building, Kansas City, Missouri, are doing the work under the direction of Chief Engineer Trumbolt.

Chicago and Vicinity

BY H. C. HELT

The T. M. White Excavating Company has been handling the excavation for the new Shedd Aquarium which is to be near the Field Museum in Grant Park; approximately $3,000,000 will be spent in building this new aquarium which will furnish to the City of Chicago another place of interest for visitors.

The Morton Sand & Gravel Company, a new corporation, was recently organized for the purpose of producing sand and gravel with pits located near Wayne, Illinois, and offices in Chicago. They will use a Bucyrus 50-B electric clamshell machine for handling material in their pits. Mr. Mark Morton is president and Mr. Wirt Morton is secretary of the new company.

Mr. Nicholas Santucci has stopped work temporarily on the large sewer contract obtained recently from the Village of Park Ridge. He will not proceed further with the work until an outlet sewer is provided by the Sanitary District of Chicago. He wants to sell his Northwest No. 105 which is one year old, and will consider offers on it. His address is Niles Center, Illinois.

The Folwell & Ahlskog Company of Chicago, contractors and engineers, were low bidders on the two-million-dollar Cincinnati, Ohio, viaduct. The Thorston Construction Company of Kansas City, Missouri, were second low. The job has not been let yet, but probably will be in the near future.

Bill Hayes of Detroit, Michigan, was awarded part of the work on the new three-million-dollar Sanitary District sewer by Paschen Bros., and he will use a large dragline on the job. Paschen Bros. are the main contractors and propose doing most of the work in tunnel. This is the largest sewer in size, and the biggest contract for sewer work that has been let in Chicago in several years.

The East Chicago Docks Terminal Company are spending $400,000 on construction work this winter. Their plant will be located on the Indiana Harbor Canal at Canal Street. They will have a 1500-foot frontage on the canal for boat docks. This is the first unit of a two-million-dollar building program covering a period of three years proposed by this company which will provide large terminal warehouse facilities in the Calumet region.

Michael J. Faherty of the Board of Local Improvements has recently returned from an extensive tour of Europe where he has made a thorough study of subway construction and operation in London, Paris and Berlin. Chicago is planning a new subway, and his trip of inspection was in connection with the new proposed subway on which work is expected to start this year. It looks as though something is going to be done at last in providing Chicago with the much-needed system of subways.

Detroit and Vicinity

BY P. M. RICHARDS

The Koenig Coal and Supply Co. of Detroit will open a new gravel pit east of Oxford, Michigan. A Bucyrus 50-B Ward-Leonard electric shovel will start work about January 10th.

The C. N. Ray Corporation gravel pits will be operated by the Greenville Gravel Co. next season. Mr. Fred Grant will be in charge of all Michigan operations. Mr. L. E. Williams will continue with the C. N. Ray Corporation.

One of S. A. Healy's Bucyrus 50-B steam shovels was the first 1½-yard shovel to be used on a downtown basement job in Detroit, having been used on the basement job of the new J. L. Hudson Department Store. The foundations are being done by Spencer White & Prentice.

The J. A. Mercier Co. have converted their Bucyrus 30-B Diesel shovel to a dragline and are making good progress on a Dearborn, Michigan, sewer. The work is in charge of Omer and Glen Brandon.

A bad slide on the overburden spoil bank at the Standard Gravel Co. plant, New Hudson, Michigan, derailed one of their locomotives, the locomotive rolling completely over in the soft fill. Mr. J. E. Gooding, father of Superintendent O. E. Gooding, was the engineer, and had a very close call as he went over with the engine in his effort to save it.

Illinois Notes

BY D. C. ANDERSON

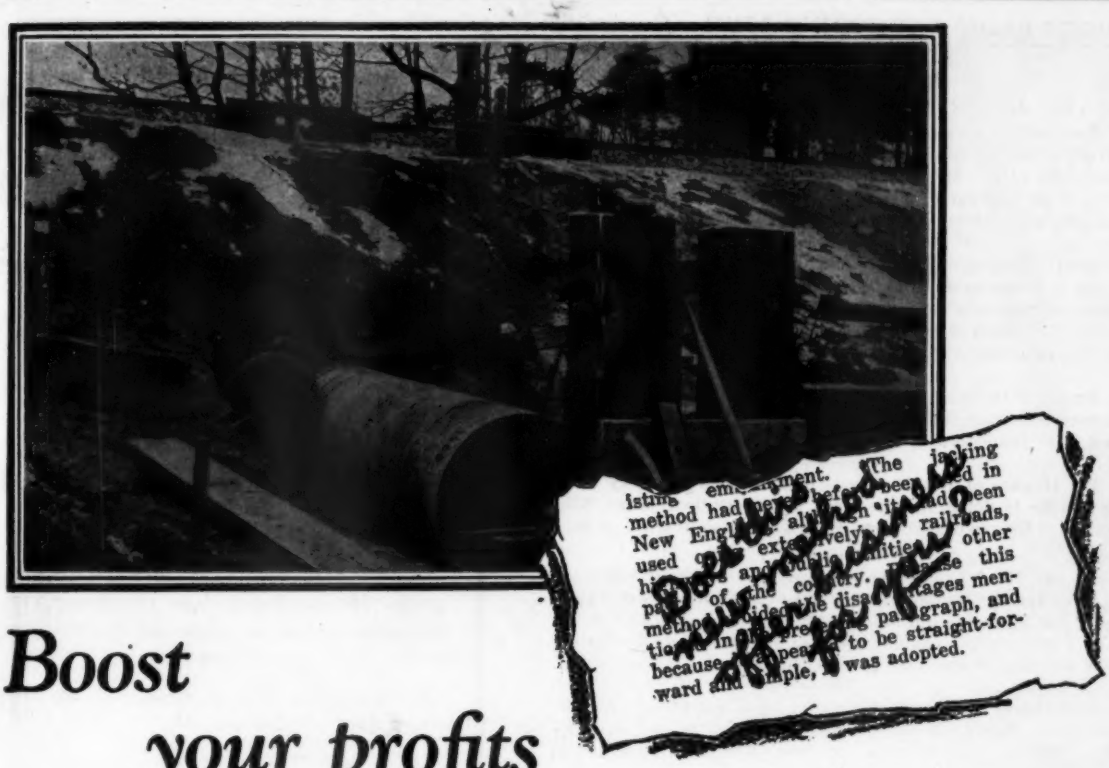
Bohnsack Brick Co. have purchased 43 acres in Schiller Park at Irving Park Boulevard and River Road for a new brick plant. When their former plant burned down and the clay was about worked out they decided it would be a good opportunity for going to a new location.

James P. Madsen of River Forest is renting his shovel to Jaicks Bros. on their road job west of River Forest. The machine is a Byers, and Madsen told the writer he needed pontoons on it to keep the boom point in sight due to the excessive rains.

A. F. Beckman of Glen Ellyn has just about completed his activities for this year, and is looking forward to a successful 1928. He has a steam Erie which has given him excellent service.

Hawk and Brockner of Monee, Illinois, are finishing their Homewood sewer job. That part of Cook County saw enormous activity the past year. Blue Island, Homewood, Dolton, and other suburban towns spent large sums in paving, sewers, etc. Among the larger contractors, besides Hawk & Brockner, doing this work were: Blackhawk Construction Co. of Iowa, Pastoret, Dorsey, & Barrett of Duluth, Kruse Construction Co., Pronger Bros., Public Construction Co. of Hammond, Andrae Bros. of Chicago Heights, C. M. Porter, Alex Pizza, and others.

T. H. Iglehart is about through with his present work in North Riverside. Mr. Carson has been in direct charge of this work.



Boost your profits with a "pair of jacks"

Contractors *increase business and earnings* through this new ARMCO method of culvert installation.

From Nebraska, Oklahoma, Texas, New York, and from New England, come reports of quick and satisfactory culvert installations by the Armco jacking method. On each job the officials in charge saved time and money and increased the safety of their work. On each, there was a handsome profit for the contractor.

Opportunities like these exist in every state. Wherever openings are required under existing embankments—for new culverts, for conduits, for undercrossings, for cattle passes—there is also a profit awaiting the live contractor.

Literally, in addition to your ordinary tools, all the equipment needed is a pair of sturdy jacks. Small investment, small crew—quick turn-over, satisfactory return. If you are interested in the Armco jacking method as a profitable side line or as an exclusive specialty, write us for practical working data not available from any other source.

SEE US AT THE ROAD SHOW—BOOTH EH-41

Forty manufacturing plants throughout the United States and Canada assure you immediate service on drainage requirements, no matter where you may be.

ARMCO CULVERT MANUFACTURERS' ASSOCIATION
MIDDLETOWN, OHIO

ARMCO CULVERTS

Predominant in use—because predominant in quality

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SHOTS FROM THE FIRING LINE — Continued

Iowa and Vicinity

BY H. C. EMERY

Jack Boine was the successful bidder on approximately 710,000 cubic yards of drainage work, let at Atlantic, Iowa, November 25th. Mr. Boine's bid was exceptionally low, it being 5.42c per cubic yard, including the clearing, which is conservatively estimated at $6,000.

Fred Grundin of Fort Dodge was awarded the contract to dig a drainage ditch entailing approximately 64,000 cubic yards of common excavation, including approximately 3 acres. The ditch is located near Muscatine and Mr. Grundin bid 14c per cubic yard including the clearing.

Briggs & Drew of Omaha are making good headway on a drainage contract they have near Atlantic, Iowa. Bud Copeland is in immediate charge of the work.

Ed. Hughes of Des Moines is making good headway with the job he is doing for the Rock Island Railway near Williamson. He reports his new Erie Gas-Air delivering in fine shape.

Arthur Numan & Company are excavating at 8th and High Street in Des Moines for the new headquarters building of the Northwestern States Bell Telephone Co. The above have a contract covering the entire structure and are using their old Erie to excavate for the basement.

The Dewey Portland Cement Co. are installing another kiln at the Davenport plant, which will increase the capacity from 3,000 to 4,500 barrels per day. Their Bucyrus 100-B shovel is able to take care of the requirements very nicely.

The Bryant Paving Co. of Waterloo were awarded contracts covering approximately 53 miles of paving at a letting held by the Iowa Highway Commission at Ames on November 15th.

Charley Walker has completed his road job near Readlyn, Iowa, and has moved his Bucyrus D-2 dragline to a drainage job near Burlington. Charley says there are draglines and other draglines but the D-2 has them all cheated for low cost per yard.

Wm. Hawks, operator, who has been running a Thew in a quarry at La Porte has just finished up the season.

Kansas Notes

BY F. W. KNABLE

Solvay Process Company's quarry, located at Moline, Kansas, has shut down for the winter. Their Bucyrus 100-B electric shovel will be kept on stripping during shut-down.

Alston Coal Company, Commerce Building, Pittsburg, Kansas, have dug in and are uncovering coal with their Marion Model 300 electric shovel. They are also using a Bucyrus 30-B horizontal thrust coal loader, and Bucyrus 50-B electric bank machine.

Commerce Coal Company, Commerce Building, Pittsburg, Kansas, have dug in and are uncovering coal with their Bucyrus 225-B steam shovel. They also have their new steel coal tipple in operation. This was designed and erected by Pittsburg Boiler & Machinery Co., Pittsburg, Kansas.

Kentucky and Illinois Notes

BY B. R. ANDRES

W. E. Callahan Company were recently awarded large sewer job at Louisville, Kentucky. They have just completed their section of the River Des Peres sewer work in St. Louis and are well equipped for doing this kind of work.

C. W. Marshall of Kansas City has completed his subcontract on the Pennsylvania work near Collinsville, Illinois. The work was done with a Bucyrus 50-B and 70-C shovel.

About Your Operator

The man behind the levers on your shovel is a valuable man. Why?

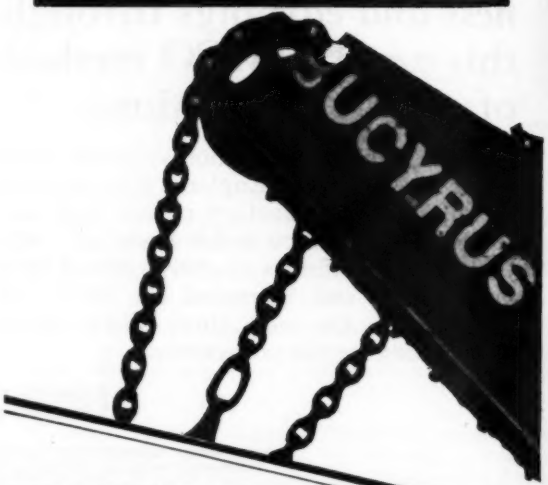
Your daily output depends on him. Your repair costs depend on him. He can affect your profits.

His shovel is his working mate and his pride. He watches it close, checks up on wearing parts, recommends improvements and strives for output.

Do you know him or is he just an individual on your payroll?

He can save you money and increase your profits. Know him better.

He watches the chain pulling the dipper up through the face too. He knows his "stuff" when he recommends Taylor Chain.



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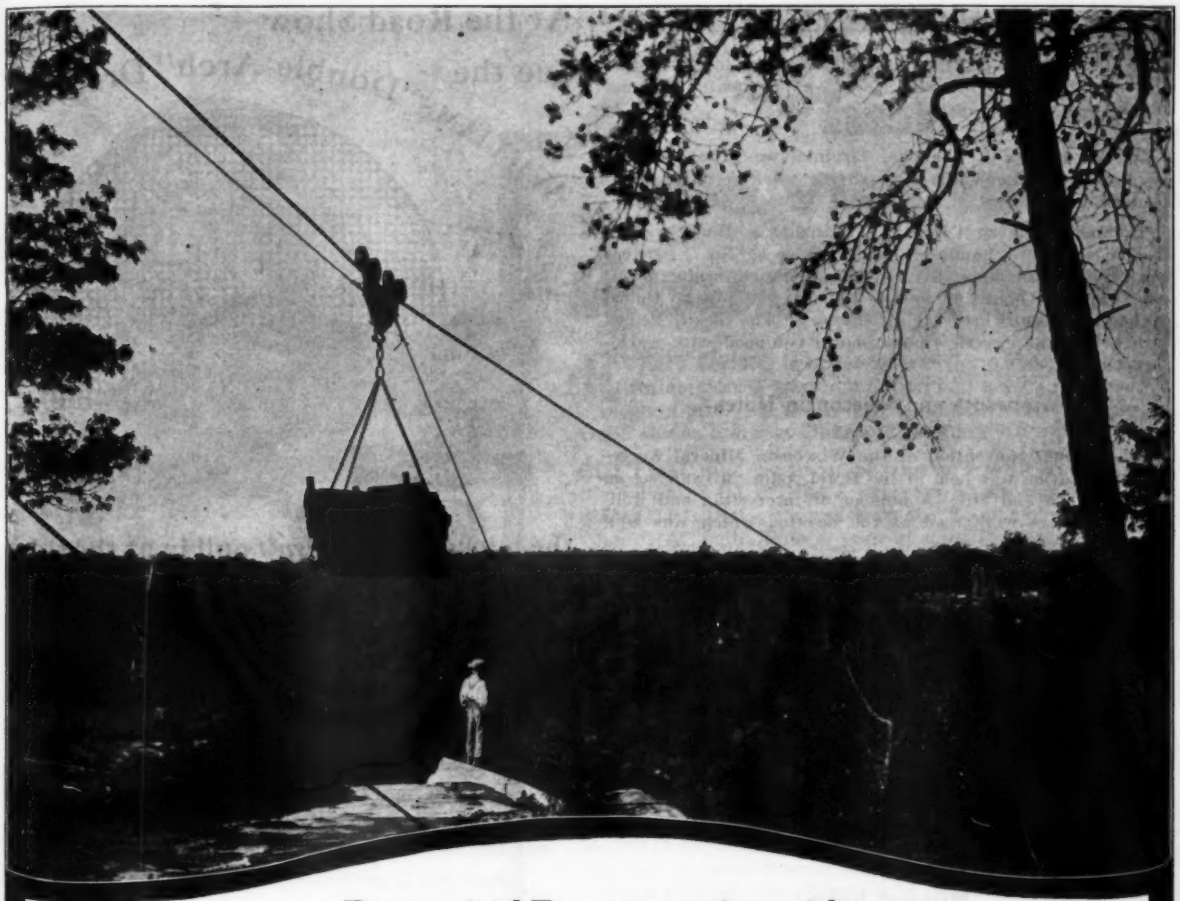

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SHOTS FROM THE FIRING LINE — Continued

D. J. Schlabach of Elkhart, Indiana, is working his floater at Walnut Ridge, Arkansas. He has approximately another year's work on this job.

W. W. Boxley of Roanoke, Virginia, was awarded both sections of the Louisville & Nashville work recently let at Louisville, Kentucky.

Columbia Quarry Company are using a Bucyrus 50-B electric shovel to handle their stripping at No. 1 Quarry located near Columbia, Illinois. Their entire production at the Valmeyer Quarry is now being quarried by the tunnel method and results are very satisfactory. The rock is loaded with a Bucyrus electric tunnel shovel equipped with a 1½-yard bucket.

Minnesota and Wisconsin Notes

BY C. W. HAY

The annual convention of the Wisconsin Mineral Aggregate Association was held at the Hotel Astor, Milwaukee, on December 7th and 8th. A number of interesting and well-selected papers were read at the meeting which was well attended.

N. P. Swanson, Hibbing, Minnesota, contractor, is confined to his home with a fractured leg. The doctor has threatened to keep him on crutches until the first of February.

Mr. Rodgers of Rodgers & Curtis is back in Minneapolis after having finished a two-year drainage job in Ohio.

Details of the New Ulm sewer system will be available to contractors next April according to the consulting engineer, Mr. Chas. Foster of Duluth. Present indications are that there will be some heavy trenching for the storm sewers.

Thornton Bros. were recently awarded ten miles of paving at Houghton, Michigan.

Missouri Notes

BY F. W. KNABLE

W. C. Hill Construction Company, 501 Delaware Street, Kansas City, Missouri, are getting started on their Missouri Pacific yard work at Coffeyville, Kansas, starting this work off with a new Bucyrus 31-B steam shovel.

Winston Bros. Construction Company, St. Louis, Missouri, are getting along nicely with their Missouri Pacific work located between Neodesha and Coffeyville, Kansas.

Tebo Coal Company, Clinton, Missouri, have dug in and are uncovering coal with their Bucyrus 225-B steam shovel. They also have in operation a Bucyrus 41-B horizontal coal loader.

Lower Ohio Notes

BY D. W. EVANS

Everyone in Cincinnati seems to feel that 1928 will be a big year. Construction on the new Union Terminal will play no small part in making it so. This work will be handled by the Cincinnati Union Terminal Company, a concern organized recently by the railroads interested. Colonel H. M. Waite is chief engineer. Geo. P. Stowitts, construction engineer, advises that as the jobs are let the new company will bid with other contractors for the work. While plans at this time are tentative it is expected that excavation on this job will run over seven million yards, and work will be started by June first.

Work on the new Chesapeake & Ohio Bridge at Cincinnati is moving along monthly. Boxley Bros. of Orange, Virginia, are well along on the southern approach. Construction of the piers is being handled by the U. G. I. Contracting Company of Chicago. The northern approach was let to A. H. Calligan, Richmond, Virginia, and this job is already

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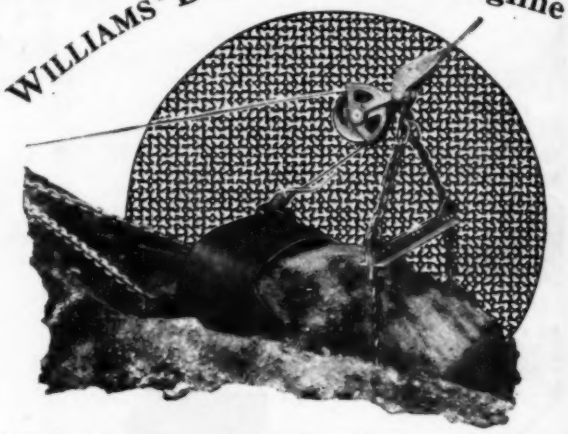

the bucket that *doesn't* pull in at the sides

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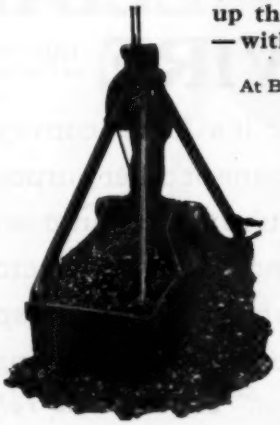
It has a rigid one-piece bridge, reinforced by a heavy special alloy steel digging lip. An arch above, and one below — giving ***double rigidity.***

And you'll see other good practical points that you'll like on this faster, handier dragline bucket.

The Clamshell Bucket that builds up the needed power *faster* — with less cable overhaul.



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SHOTS FROM THE FIRING LINE — Continued

under way. M. B. Van Dorn has charge of the work for Calligan; J. N. Towne keeps things moving for the U. G. I. and H. F. Thomas is superintendent for Boxley.

Sam Steele of Boggess & Steele, Ashland, Kentucky, tells us he has a Bucyrus 70-C and a Bucyrus 18-B working near Chillicothe, Ohio. He is loading ballast for the Norfolk & Western.

The Ashland Supply Co. was awarded twenty-six miles of Federal Aid road in Eastern Kentucky. M. O. F. Elam, president of the company, plans to clear up this job with his two Northwests. Excavation runs nearly 400,000 yards, mostly cast work with a good percentage of rock. The job is to be finished within three years.

E. H. Latham of Columbus was awarded the sewage disposal plant job in Dayton. Boyd & Clark of Dayton will handle the excavation.

Ray Sullivan has been keeping his two Osgoods busy on street grading in Cleveland.

The Lowensohn Construction have a Bucyrus Class-24 dragline working double shift on a channel change in the Mahoning River near Youngstown, Ohio. This work is being done for the Carnegie Steel Company, and involves moving about a half-million yards of material.

The Stange Construction Company, Cleveland, are finishing up a reinforced concrete bridge across the Mahoning River and the Erie tracks at Girard, Ohio.

H. E. Culbertson, Cleveland, has brought in a Bucyrus Class-24 dragline for work on the Nickel Plate approach to the new Union Terminal. This dragline was brought down from the Welland Canal in Canada.

Ed. Erust of Milford, Ohio, is certainly moving dirt around Cincinnati. He is keeping four shovels busy on small basement jobs.

Brewer & Brewer Sons Construction Company of Cincinnati are coming along in fine shape on their job on Montgomery Road.

Hickey Bros., Cincinnati, expect to finish their job on the new rapid transit tube and Central Parkway before March.

Wm. Springmeier of the Cins Construction Co., Cincinnati, tells us his Bucyrus 14-B's have been overhauled and laid up for the winter.

S. T. Brotemearkle of Cumberland, Maryland, just put the finishing touches on a road job near Midland.

A. Keathly of Charleston, West Virginia, was awarded about 6 miles of hard-surfaced road work in Raleigh County, involving about 250,000 yards of excavation. Mr. Keathly expects to complete this road within a year.

Oklahoma Notes

BY F. W. KNABLE

Ward, Beekman & Brooks, contractors, Oklahoma City, Oklahoma, recently completed seven miles of concrete paving located between McAlester and Crowder, Oklahoma.

Richards & Moorman, contractors, Cushing, Oklahoma, expect to complete their work on State Highway 33, located west of Cushing, Oklahoma, by January 1, 1928.

Green-Boots Construction Co., Oklahoma City, Oklahoma, are getting along nicely with their sewerage contract located at Oklahoma City, Oklahoma.

The Zenith Limestone Co., Tuloma Building, Tulsa, Oklahoma, are revamping their quarry at this time, and recently moved in a Bucyrus 50-B electric shovel.

A McCord Force Feed Lubricator Will Keep Your Shovel on the Job

A McCord force feed lubricator installed on your steam shovel now will insure more continuous operation. Dependable force feed lubrication prevents shutdowns and delays, it gives more hours on the job.

McCord force feed lubricators are used as standard equipment by the largest and best-known steam shovel builders and they will be installed on any shovel at your request.

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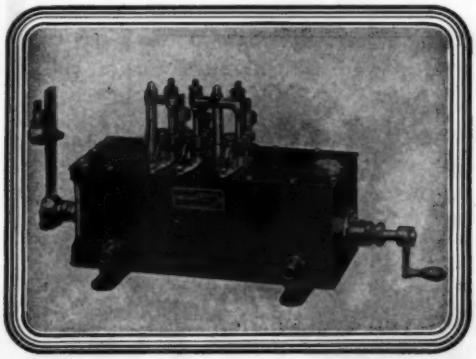

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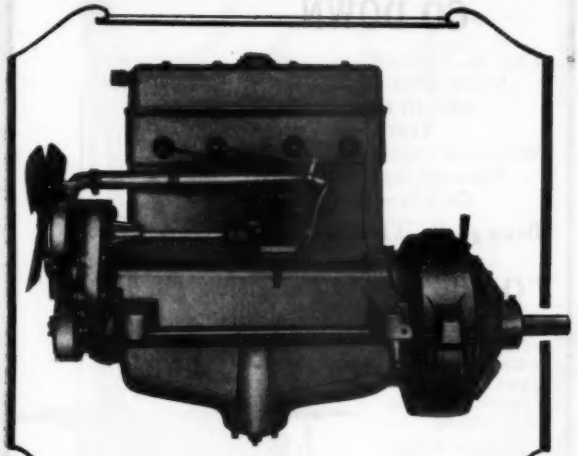

Model FE 4½" x 6" 4-cylinder, valve-in-head Twin City Engine.

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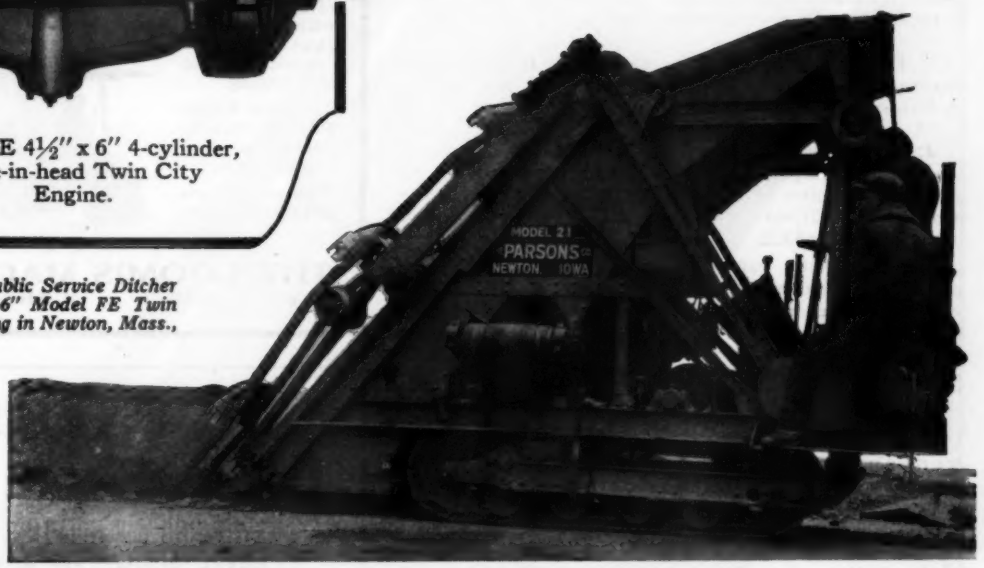

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SHOTS FROM THE FIRING LINE — Continued

Grand River Gravel Co., Manhattan Building, Muskogee, Oklahoma, are enlarging and overhauling their plant located north of Fort Gibson, Oklahoma.

Ellis & Lewis, contractors, Surety Building, Muskogee, Oklahoma, are getting along nicely with their road award located near Muskogee, Oklahoma.

Pacific Coast Notes

BY P. H. BIRCKHEAD

A. Daisch has been operating a Bucyrus Class-24 dragline ever since it was installed at the new plant of the Associated Gravel Company at Coyotte, California. Mr. Bishop is the plant superintendent.

A. J. Speaker is operating a Bucyrus D-2 for the Santa Cruz Portland Cement Co. at Davenport, California, and is very much pleased with it. Mr. Fred Davis and Mr. Jas. Riordan, superintendent and assistant superintendent, also speak very highly of the machine, which is at present working in the clinker pile at their main plant.

C. E. Helstrom is running a Bucyrus 30-B for the Bay Development Company at Coyote, California. His brother, R. Helstrom, is superintendent of the plant.

J. E. Johnston of Stockton has been awarded contract by the California Department of Public Works for grading and surfacing 3.5 miles of highway in Del Norte County. The main item is 177,560 cubic yards excavation at $0.54, contract price is $168,322.

Bids as follows were submitted to United States Engineers Office, Custom House, San Francisco, for 400,000 cubic yards dredging in Oakland Harbor: American Dredging Company, 255 California Street, San Francisco, (low) $.195 a yard; United Dredging Company, Oakland, $.2625 a yard; San Francisco Bridge Company, San Francisco, $.35 a yard.

The following were the two lowest bids received by the United States Reclamation Service, Salt Lake City, Utah, for the construction of the Weber River Division of Salt Lake Basin Project, Utah: (1) Schedule No. 1 — Grading and structures on the relocated branches of the Union Pacific Railroad and the Lincoln Highway around the Echo Reservoir, two lowest bids as follows: Utah Construction Co., Phelan Building, San Francisco and Ogden, Utah (low bidder), accepted, $386,969; A. Guthrie & Co., Portland, $432,056. (2) Schedule No. 2 — Construction of the Echo Dam, earth fill type, two lowest bids as follows: A. Guthrie & Co., Sherlock Building, Portland, Oregon (low bidders), accepted, $1,125,097; Utah Construction Company, $1,131,350.

Contract has been awarded by the State Division of Highways to the W. A. Bechtel Company of San Francisco for two undergrade crossings in Placer County. Contract price is $43,209.

Plans and specifications are being completed by City Engineers Office, City Hall, San Francisco, and call for bids will be issued shortly by the Board of Public Works for grading, bridge construction, sewers and drainage system on the Bernal Cut. Estimated cost of construction work $600,000. Work is to be done under bond issue, bonds voted in amount of $1,400,000, balance of $800,000 for purchase of land, etc.

Mr. J. F. Knapp is making excellent progress on his State Highway contract for the reconstruction of El Camino Real between San Luis Obispo and Pismo. F. Hanson, who has been with Mr. Knapp for the past four years, is, of course, operating one of the shovels.

Contract was awarded to C. R. Adams, Yreka, who bid $80,590 for constructing by grading and gravel surfacing Squaw Mountain Road for County, Yreka, Siskiyou County.

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And "CLIPPER" HOLES GO DOWN —

Day in, day out,
Week after week,
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Winter or summer,
Through hard rock
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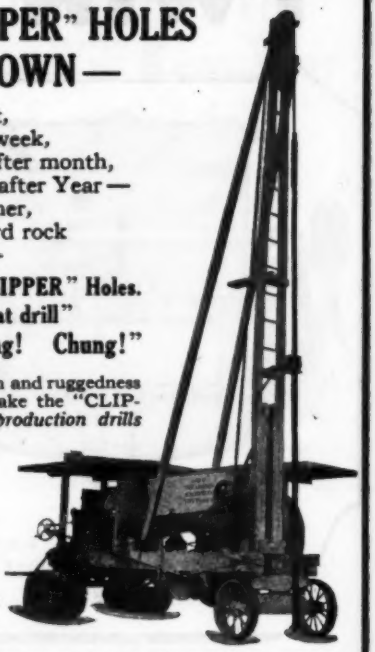

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SHOTS FROM THE FIRING LINE — Continued

Pennsylvania Notes

BY H. C. DAVIS

Engineers Galen Holler and Timon Plymire are working for the York Valley Stone Company, York, Pennsylvania. C. C. Landis is the quarry superintendent.

E. E. Garnes and J. H. Hoover are running Eries for J. C. Shawfield Company, Harrisburg, Pennsylvania.

Swanger & White, Leban, Pennsylvania, were low on a piece of highway work in Dauphin County let at Harrisburg, Pennsylvania, recently.

At a highway letting on November 18th at Harrisburg, Pennsylvania, The Hagendorn Construction Company of Grafton, West Virginia, was low on work in Cambridge and Westmoreland Counties.

Engineer H. H. Hunter is working for the McGraw Construction Company at Harrisburg, Pennsylvania.

Paul R. Beals, Buffalo, New York, was low on highway work in Butler County, Pennsylvania.

The low bidders on the work let by Pennsylvania State Highway Commission at Harrisburg on November 18 in Allegheny, Clearfield and Westmoreland Counties were as follows: McPherson Brothers, Edgeworth, Pennsylvania, W. C. Quick & Company, Brookville, Pennsylvania, and Edward H. Canon, McKeesport, Pennsylvania, respectively.

Southern California and Arizona Notes

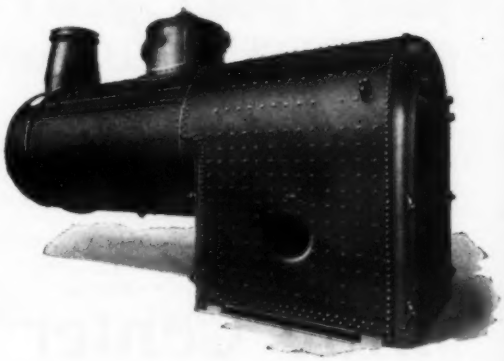
Southern California

BY J. H. SACKETT

Plans and specifications are being prepared by Consulting Engineers, Norman McLean, San Diego, and John H. Chase, Box 602, Riverside, for the construction of improvements for the Tia Juana River Irrigation District, San Ysidro, San Diego, consisting of wells, pumping plant, reservoir and distributing system. The work involves: five wells 12 inches in diameter; two or three centrifugal pumping plants with a total capacity of 1800 g.p.m., 150-foot head; one 750,000-gallon reservoir; 12 miles of pressure pipe from 4 inches to 18 inches in diameter, also valves, gates and fittings; 12 miles of ditch. The district has been organized and engineers will submit a report to the State Bond Certification Commission for approval. If the report is approved, the date will be set for the holding of bond election in the amount of $150,000 for the construction of the above improvements.

The Superior Court has approved the intention of Ventura County, Kern County and Santa Barbara County to issue bonds in excess of $500,000 to pay their portion of cost of construction of 75 miles of road, 20 feet wide, maximum grade of 6 per cent, highest elevation about 5300 feet, the road is to run from the west side of Kern County to connect Maricopa, Kern County and Carpinteria, Santa Barbara County. The work is for the Tri-County Highway District. Bids for the construction of the first section of the road will probably be called for shortly. The total project involves the following main quantities and the work is to be contracted for in sections: 1,778,660 cubic yards earth and rock excavation; 15 bridges, ranging in length from 20 to 720 feet. The total estimated cost of the project is $1,195,800. The engineers for the District are: Chas. Petit, County Surveyor, Court House, Ventura; Owen H. O'Neill, County Surveyor, Court House, Santa Barbara; and J. R. Thornton, County Surveyor, Court House, Bakersfield.

Bonds have been voted by the City of San Bernardino, San Bernardino County, in amount of $650,000 for the construction of sewer improvements as follows: Construction of



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For its power — speed — durability — rugged strength — efficiency.

Do not all of these depend upon the boiler?

Can you afford to consider anything less than the very best?

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FERRYSBURG, MICHIGAN

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In the contracting field, they are especially popular. Operators find that with their low center of gravity and short wheel base, Whitcombs are ideal for operating over narrow gauge, industrial tracks.

Any employee of average skill can operate and maintain a "Whitcomb," because of their simplicity of design.

There is a Whitcomb locomotive of a size for any purpose you require. And, regardless of size, they are "designed to work, built to overwork" — POWERFUL.

Either gasoline or electric powered. Write us of your haulage needs and our engineers will make a recommendation to you.

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GASOLINE ELECTRIC

SHOTS FROM THE FIRING LINE — Continued

trickling filter treatment plant to cost approximately $330,000; construction of outfall sewer to cost about $144,000. Plans and specifications for the project are to be prepared by Currie Engineering Company, Anderson Building, San Bernardino, California.

Arizona

The Atkinson, Kier Brothers, Spicer Company are progressing very nicely with the construction of the Coolidge Dam at San Carlos. The contractors are now pouring cement on the east buttress of the structure. Three shifts are now being run and about 1000 cubic yards of cement is being poured daily. The buttress on which work is now being done is 60 feet wide and 240 feet long. There are two such structures in this dam. The contractors have recently moved in a Bucyrus 50-B two-yard Diesel shovel to use on this job.

Southern States Notes

BY W. W. WHORLEY

John Corbin writes that he is running a Bucyrus Class-9½ dragline for C. G. Kershaw at Columbus, Mississippi.

Dewitt Van Diver of Harrodsburg, Kentucky, was a recent visitor at this office.

J. D. Morris dropped in to see us recently. J. D. has been operating shovels for the Memphis Stone & Gravel Company at Grand River, Kentucky.

Mr. S. T. Williams, who is in charge of the pit at Stephenson, Mississippi, for the Interstate Gravel Co. of Baton Rouge, Louisiana, advises that, during the flood period, they loaded what is believed to be a record amount for their Bucyrus 50-B. For five months this shovel was operated on two twelve-hour shifts every day with no loss of time for mechanical trouble. An average of 3 or 4 hours daily was lost waiting for cars. During this period they averaged 100 thirty-yard cars daily with as high as 4500 cubic yards in 24 hours.

Newt Hubbard who handles a Bucyrus 100-B electric shovel for the Phoenix Portland Cement Company at Birmingham is fond of coon hunting and has several hounds for that purpose. One of the dogs recently dug in after a coon and according to Newt moved so much dirt that he decided to name the dog Bucyrus.

Rufe Hardeman is loading brown ore into cars on top of a 15-foot bank with a Bucyrus 50-B high-lift shovel for the Central Iron & Coal Company.

F. L. Busby is loading shale with a Bucyrus 20-B electric shovel at North Birmingham, Alabama.

Dick Holman is operating a Bucyrus 30-B for the Spruce Pine Sand & Gravel Company.

Harvey Van Diver is handling an Erie shovel for the Bessemer Engineering & Construction Company near Birmingham, Alabama.

L. L. Spivey of Anniston dropped in to see us while on his way home from Kentucky. Mr. Spivey has been running a Bucyrus 31-B for the Spinks Estate near Newport, Kentucky.

W. A. (Arthur) Taylor reports good progress on a heavy piece of highway grading near Leeds, Alabama, which he is handling for his brother, S. C. Taylor. Vader Roberts is fighting rock on this job with a Bucyrus 20-B.

Coal strip mining continues to be rather quiet in this district due to the prevailing low prices and warm weather.

The Dixie Construction Company have begun preliminary operations towards building a large steam turbine generating plant for the Alabama Power Company at Gorgas, Alabama. The first unit will have a capacity of 50,000 k.w. and provision will be made so that by installing additional turbines and generators, the capacity can be increased to 200,000 k.w. A Bucyrus Class-14 dragline will be used to handle the canal excavation.

St. Louis Items

BY A. J. KOENIG

Contractors in this vicinity have had ideal dirt moving weather during the months of October and November, and have made good headway for this time of the year.

Bids for approximately 145 miles of state highways and 15 bridges are being received by the State Highway Commissioner at Nashville, Tennessee, letting December 16.

The War Department has approved plans for a bridge over the Osage River at Bagnell, Missouri.

The Gray Paving & Material Co. was awarded the contract for paving the new Gillham Road between 31st and 34th Streets in Kansas City.

The Rose Construction Co. have moved their shovel outfit on a state highway job near Harrisonville, Missouri.

J. J. Donnely, 4571 Oakland Avenue, St. Louis, has a fresno and wheeler outfit idle.

The W. C. Hill Construction Co. report their yard work at Coffeyville, Kansas, is progressing nicely.

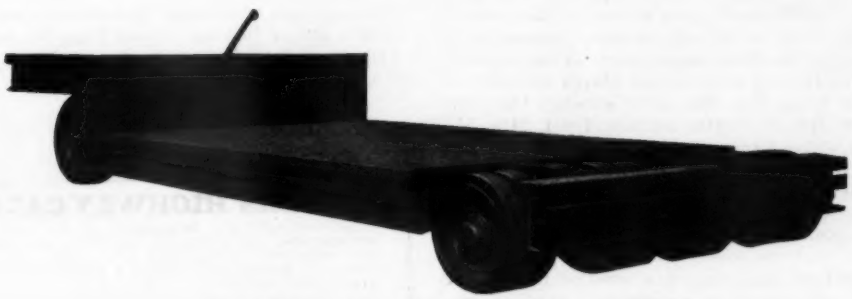
The Union Bridge Co., Kansas City, was awarded contract for substructure and approaches for bridge across the Ohio River at Paducah, Kentucky.

J. B. Dorris has a machine outfit and caterpillar tractor idle. Box 123, Aberdeen, Mississippi, will reach him.

The Missouri State Highway Commission at Jefferson City has received bids for 17 bridges and 76 miles of highway.

6-Wheel Contractor's Trailer

For Hauling Steam Shovels and Other Heavy Equipment



Showing Clear Space for Loading Over Rear End

This Trailer has a carrying capacity of 30 tons and can be loaded over the rear end as well as from either side. It is equipped with rubber tires, Timken bearings, and internal expansion brakes.

There are two wheels in front and four in the rear. It can be turned in its own length and a 5-ton truck will haul it with a 30-ton load.

Move Your Heavy Equipment Quickly and Safely with Your Own Trucks.

ASK FOR BULLETIN S-75B

BUCYRUS-ERIE COMPANY

SPECIALTY DEPARTMENT

SOUTH MILWAUKEE, WISCONSIN, U. S. A.

SHOTS FROM THE FIRING LINE — Continued

Brown County, Kansas, will let 13 miles of sand-clay surfacing on United States Highway No. 75 and United States Highway No. 36 north from Sebetha to Nebraska state line, and also for 15½ miles of sand-clay from Seneca east on United States Highway No. 36 to the junction.

M. E. Gillioz Construction Co., Monett, Missouri, was awarded contract for a second approach to Benton Avenue Viaduct at Springfield, Missouri.

Beardstown, Illinois, is planning extensive sewer additions. Preliminary plans are now being drawn.

C. D. Herrin, Box 97, Gentry, Missouri, has a fresno outfit idle and wants a job for same.

The Missouri River channel will be improved from Kansas City to a point eighty miles down stream by the expenditure of the half-million dollar supplemental appropriation recently approved by the War Department. Five contracts will be let January 1st and work started March 1st, 1928, as follows: Jackson Bend, Mile 365, near Missouri City, two 3-row dikes, 4,400 feet, $132,000; Jackson Bend, Mile 354, above Sibley Bridge, five 3-row dikes, 3,200 feet, $96,000; Berlin Bend, Mile 311, above Dover, Missouri, three 3-row dikes, 4,000 feet, $120,000; Baltimore Bend, Mile 309, below Dover, three 3-row dikes, 3,000 feet, $90,000; Hinkles Bend, Mile 62, four 3-row dikes, 2,070 feet, $62,000.

The $12,500,000 bond issue that was voted on in St. Louis County, Missouri, for highways, sewers and buildings was defeated.

The War Department has approved plans of the Missouri and North Arkansas Railroad Company for a bridge over White River near Georgetown, Arkansas.

Harry Tidd, Laplata, Missouri, has about 8000 yards of 7-foot box sewer excavation at Poplar Bluff, Missouri, which he would like to sublet to dragline outfit.

The Standard Bridge Co., Omaha, Nebraska, has contract for 1000 feet high truss steel bridge southwest of Quitman, Missouri.

The following contracts were awarded by the Illinois State Division of Highways: Route 142, Hamilton County, earth road, to Higgins, Dyer & Co., Granite City, Illinois; Route 142, Hamilton County, bridge, Watt Construction Co., Winchester, $33,613.66; Route 81, Henry County, bridge, G. C. Fairclo, Princeton, $14,330.22; Route 156, Monroe County, bridge, to P. & G. Construction Co., Mount Carmel; Route 7, Henry County, bridge, to Frandsen Construction Co., Chicago, $11,748.66; Route 81, Henry County, grading, to Central Engineering Co., Davenport, Iowa, $29,704.45.

Construction of the $25,000,000 Table Rock Dam at the head of Lake Taneycomo on the White River necessitates the abandonment of four bridges in Stone and Taney Counties, it was announced by H. P. Mobberly, Division Engineer for the Missouri Highway Department. It also may necessitate the construction of four new bridges and the building of a considerable mileage in connecting the highways. The Empire District Electric Company, which is promoting the Table Rock Dam project, has agreed to pay for the connecting highways and the bridges.

The Board of Public Service, St. Louis, Missouri, is drawing plans for a concrete viaduct over the Frisco tracks in Ellendale. $531,000 has been appropriated for this work. Contract will be let January 13th.

E. B. Styles was a visitor here while looking over the situation in this territory. He has a couple of outfits at work around Chicago.

Bids for the construction of 16.45 miles of forty-foot highways in Will, Kankakee and Cook Counties in Illinois to relieve traffic congestion into Chicago were received by the State Department of Highways. Contracts will be let at a later date.

The following contracts were awarded by the Illinois State Division of Highways: Route 72, De Kalb County, paving, C. E. Giertz & Sons; Route 10, Vermillion County, grading, R. McClaman, Inc.; Route 10, Vermillion County, bridge, R. McClaman, Inc.; Route 10, Vermillion County, bridge, Vincennes Bridge Co.

Higgins-Dyer & Co., Granite City, Illinois, were awarded contract for grading Section 103A, Route 142, in Clay and Fayette Counties, Illinois, on their bid of $49,937.43.

Canada

Montreal and Vicinity

BY J. M. WARD

The Quebec Provincial Government has agreed to subsidize a line of railroad around Lake St. John. This is part of the plan of the English Syndicate who expect to spend a lot of money developing this district.

L. A. Ott of Montreal will soon be leaving to spend several months in Florida.

POWERS' HIGHWAY CATALOGUE

Condensed catalogue information of the products of leading manufacturers of machinery, equipment and materials used in the construction of highways, city streets, bridges, sewers, railroads and general excavating and grading operations.
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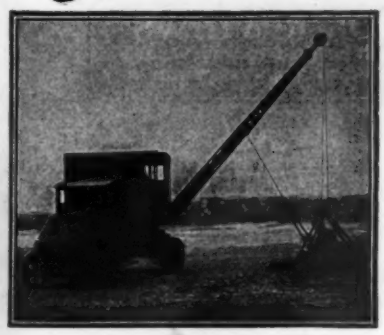

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SHOTS FROM THE FIRING LINE — Continued

Mr. W. H. C. Mussen has just returned from a month's trip to Western Canada. He was in Winnipeg, Calgary, Edmonton, Saskatoon, Vancouver, Victoria and other points West. He reports conditions as very promising and expects that the West will be very busy next year.

The Dominion Construction Company of Montreal and W. S. Tomlinson of Winnipeg have been awarded contract for the 84 miles of new railroad into the Flin Flon Mines from The Pas, Manitoba. This is a rush job and supplies have to be taken in during the winter. The Dominion Construction Co. have decided on using Linn load-carrying tractors, hauling sleighs for getting in their supplies. They are also shipping a lot of plant from the East which has been released from their other jobs.

The Cooke Construction Company expect to make a start very shortly on the new tramway line over the mountain in Montreal.

J. P. Porter & Sons are making good progress on their Canadian National Railroad job at Shawinigan Falls. They are using Linn tractors for hauling away from the shovels on certain cuts.

There is agitation in the Province of Quebec to have some of the main highways kept open for winter traffic. It is quite possible that this will be attempted, at least on some of the more popular roads.

We had a visit from George Jackson of the Jackson Construction Company. They are working on a large wharf contract at Sorel.

The question of building a Canadian National Railroad branch line from Guysboro to Sunnybrae, Nova Scotia, is up again and we believe is very actively supported.

Toronto and Vicinity

BY G. E. GREEN

Kilmer & Barber, Ltd., Toronto, Ontario, were the successful bidders on a new North Toronto sewage disposal plant. Work on this job will be started shortly.

Contract has been awarded by a syndicate for the erection of two large office buildings and a hotel to W. H. Yates Construction Co., Ltd., of Toronto. This work consists of one 28-story hotel, one 14-story office building with a 50-foot x 50-foot tower 38 stories, and one office building 28 stories. In connection with this work also there will be the wrecking of buildings at present on sites and making a new street from King to Adelaide Streets, Toronto. Job is reported to cost $20,000,000 and work is to start at once.

The Star Publishing Company, Toronto, have awarded contract to the Thompson-Starrett Construction Co. for the excavation, underpinning, caissons and concrete retaining walls in connection with their new 20-story office building.

Contract has been awarded by the Dominion Government to the Port Arthur Construction Co., Ltd., Toronto, Ontario, for considerable harbor improvements at Port Burwell, Ont.

The Detroit River Construction Co., Ltd., have been awarded contract for extension to the dock of The Lake Erie Coal Co., Ltd., at Erieau, Ontario. Contract covers about an 800-foot extension, and will practically double the Company's dock and storage capacity.

Obituary

We regret to learn of the death of Lyman A. Reed, secretary and treasurer of the Diamond Portland Cement Company, Cleveland, Ohio, who passed away on November 25, 1927.

TRADE NOTES

Armco Exhibits New Improvements at National Good Roads Show, Cleveland

Included within the display of the *Armco Culvert Manufacturers Association* at Cleveland are a number of items of more than ordinary interest to road builders. Some of these are distinctly new, and indicate important improvements which will increase the economy and facility of road construction and maintenance.

In the matter of culvert durability the Association has for some years been studying the problem of erosion by sedimentary streams. The solution developed from this study is a pipe with a paved invert, a specimen of which is on display. Wherever erosion is a factor the new product should greatly increase the economy of culvert installations. This is the first time, it is said, that a concerted effort has been made to solve this troublesome problem in road maintenance.

Another development of almost equal interest is newly perfected fittings for culvert and drainage pipe. The new Armco fittings, which include every detail likely to be required where the pipe deviates from a straight line, are sturdy in construction and workmanlike in appearance, and do away with the need for special designs for each job.

There is also an animated display showing the operation of perforated iron pipe, designed to attract attention to the effectiveness of this type of drainage. A model showing safe street intersection drainage by part circle culverts is also of interest.

BOOK REVIEWS

We shall be glad to review such books and catalogs as are sent us

WILLIAMS BUCKETS — size 8½ x 11, 32 pages and cover, well illustrated with working photographs. This book, with an attractive cover in colors, is devoted to Williams clamshell buckets. Many photographs are used to illustrate installations and the various uses of the clamshell. Many valuable tables are included for the various uses of different types of their buckets. Copy of the book may be obtained by addressing the *G. H. Williams Company, Erie, Pa.*

NOVO PUMPING HANDBOOK — Size 8½ x 11, 40 pages with cover, well illustrated with photographs and diagrams. This manual about pumps and pumping work should prove very valuable to the contractor. It contains information about various sizes of pumps and various types of pumps, pipe sizes, suggested methods, etc. Copy may be obtained by addressing the *Novo Engine Company, Lansing, Michigan.*

The Trackson Company, 500 Clinton Street, Milwaukee, Wisconsin, began publication of a magazine called TRACKSON TRACKS with a November issue. It is intended for salesmen, distributors and dealers as well as all others who are interested in Fordsons. Trackson Tracks plans to keep the industry informed of new developments in the production, application and sale of Trackson Crawlers and their use in connection with other tractor equipment. The publication should be of interest to many of our readers and may be obtained by writing to the Trackson Company.